

THE MINING AND METALLURGICAL JOURNAL.

FORMERLY THE PACIFIC COAST BULLION.

VOL. XVII., No. 7

LOS ANGELES, CAL., JULY 1, 1897

PRICE, 10 CENTS

The Gold & Silver Extraction Co. OF AMERICA, LIMITED.



TRADE MARK
CAPITAL,
\$680,000
The Original
Cyanide Process
Simple
Reliable
Economical
Gold Medal Colum-
bian Exposition
1893

Mine Owners and others having Refractory and Low Grade Gold and Silver Ores and Tailings should have their material tested by The MacArthur-Forrest Cyanide Process. Samples assayed and fully reported upon. Particulars upon application.
ADVISORY BOARD OF THE UNITED STATES
Geo. A. Anderson, General Manager;
Hugh Butler, Attorney; W. S. Ward;
J. Stanley Muir, Technical Manager.
CALIFORNIA AND NEVADA AGENT,
Bertram Hunt, 216 Sansome St., San Francisco

Office: McPhee Building, - Denver, Col.

THE EDWARD P. ALLIS COMPANY

MANUFACTURERS OF

Mining, Milling and Smelting Machinery

Crushers, Concentrators, Pumps, Compressors, Hoists, Boilers,
Reliance Crushing Rolls, Reynolds Corliss Engines, &c.

Send for Catalogue.

Milwaukee, Wis.

THE RUSSELL PROCESS

*The Improved Method of Lixiviation
for Free and Rebellious Silver and
Gold Ores and Tailings, Either Raw
or After Roasting. Send for New
Publications Just Issued*



The Russell Process Co. - Park City, Utah.

THE ROESSLER & HASSLACHER Chemical Co.

100 William St., New York

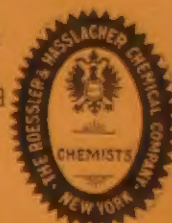
CYANIDE

Peroxide of Sodium

Hyposulphite of Soda

Chloride of Lime

Sulphide of Iron



Trade Mark

And Other Chemicals for Mining Purposes.

The California

THE CELEBRATED

HAMMERED STEEL Shoes and Dies

Warranted Not to Chip Off or Batter Up. A HOME PRODUCTION

Best Refined Cast Tool Steel, Well Bit Steel, Heavy and Light
Iron and Steel Forgings of all Descriptions.

GEO. W. PENNINGTON & SONS., 218 and 220 Folsom street, SAN FRANCISCO, CAL.

PLEASE MENTION THE JOURNAL

ADAMANTINE SHOES & DIES

AND

CHROME CAST STEEL

Cams, Tappets, Bosses, Roll
Shells and Crusher Plates.

These castings are extensively used in all the Mining States and Territories of North and South America. Guaranteed to prove better and cheaper than any others. Orders solicited subject to above conditions. When ordering send sketch with exact dimensions. Send for Illustrated Circular.

CHROME STEEL WORKS,

Kent Ave. & Kenp St., - BROOKLYN, N. Y.



Stamp Dies



Stamp Cam

The Pelton Water Wheel

Affords the Most Economical and Reliable Power for Mining,
Electric and all other purposes.

7000 WHEELS NOW RUNNING

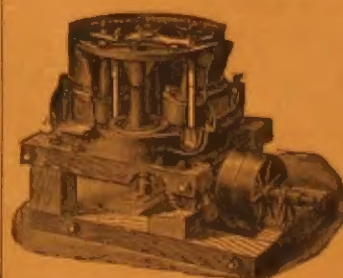
PELTON WATER WHEEL CO., 121 Main St., San Francisco, Cal.

PARKE & LACY COMPANY

21 and 23 FREMONT STREET, SAN FRANCISCO, CAL.

LICENSEE FOR THE MANUFACTURE AND SALE OF

The Huntington Centrifugal Roller Quartz Mill



THE HUNTINGTON MILL is so well and favorably known among mining men throughout the world that any description of it would seem superfluous. They are in use in the United States, Canada, Mexico, Central and South America, Australia, China, Japan, and South Africa. In fact, wherever mines exist, and have given the best satisfaction of all quartz crushing mills.

The construction of this mill has lately been much improved and we claim it to be the CHEAPEST, MOST EFFICIENT, SIMPLEST, AND MOST DURABLE MILL UPON THE MARKET.

— CATALOGUE UPON APPLICATION —

Am. Zinc-Lead Smelter CANON CITY, COLORADO. NEW MEXICO AND ARIZONA SMELTER Washington, Pima County, Arizona.

Will buy all kinds of ores; specialty made of copper ores and those containing zinc. Also smelt refractory ores desired. Write for prices to either smelter.
OEO. W. CROWE, Agent
New Mexico and Arizona Smelter
P. O. BOX 100, Canon City, Colorado.

Consolidated Kansas City Smelting & Refining Co.

BUYERS OF ALL CLASSES OF

BULLION, MATTE, ORE & MILL PRODUCTS, GOLD & SILVER BARS

Smelting Works (Leadville, Colorado.
El Paso, Texas.
Argentine, Kansas.

REFINERIES: ARGENTINE KANSAS.

FOLLOWING CODES USED: At Argentine, Kansas:
A. B. C.
Working & Mill's
and Bedford McNeill's.

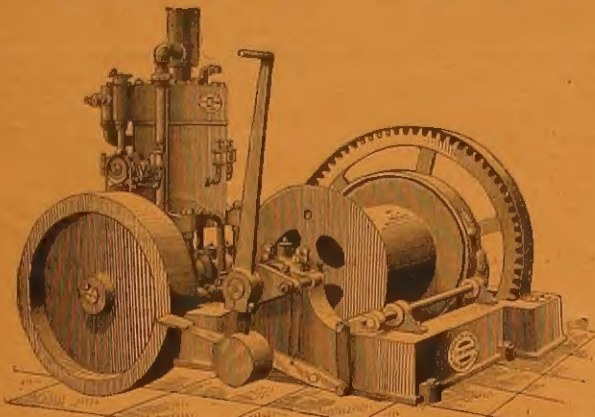
Ore Purchasing Agencies

(Spokane, Wash. Salt Lake, Utah.
Leadville, Colorado. Denver, Colorado.
El Paso, Texas. Argentine, Kansas.
Cripple Creek, Colorado.

McDearmon & Co.
Asbestos Boiler & Steam Pipe Coverings
Asbestos Cement for Boilers, drums, Heaters,
Etc. Special facilities for supplying
the mining trade.
Pacific Coast Agent for H. W. John's Co's Asbestos
Sectional Coverings.
422 Sacramento Street, - San Francisco, Cal.

AXELSON MACHINE COMPANY
HIGH GRADE MACHINE WORKS
SPECIAL TOOLS TO ORDER
Gear Cutting, Milling and Universal Grinding,
Jobbing and Repairing.
1101-3-5 North Main Street, Los Angeles, Cal.

"Union" Hoist



Union Gas or Oil Engine and Hoist Combined, on strong, iron base.
No Fire No Steam No Boiler No Danger
TEN YEARS' EXPERIENCE. TWO THOUSAND ENGINES IN USE.

Started instantly. Compact, strong, simple, efficient, economical. Perfectly governed, so that oil is used only in proportion to the work done. No expense when idle.

Particularly Adapted to Mining in Localities Where
Fuel and Water are Expensive.

Built in the following sizes:—1 H.P., 4 H.P., 6 H.P., 8 H.P., 10 H.P., 15 H.P.,
20 H.P., 30 H.P., 40 H.P.

Send for Catalogue and state what H. P. required.

Union Gas Engine Co.,
301 Howard Street, - San Francisco, Cal.

Morgan & Co.
MINING—SMELTING
FOR 35 YEARS
PRACTICAL
ORE TESTING
REFINING ASSAYING
CYANIDE AND OTHER PROCESSES
MINES EXAMINED AND DEALT IN
BULLION PURCHASED

Office: Rooms 200-201
Wilson Block
109 First & Spring Sts.
LOS ANGELES, CAL.

Bank References:
California Bank & L.A.
Los Angeles Nat. Bank
Pacific Nat. Bank
San Francisco, Cal.

IN WALS-
FRANCE
GERMANY
MEXICO
CHINA
HONGKONG
SINGAPORE
U.S.A.

FRANKLIN BOOTH
MINING ENGINEER AND METALLURGIST

... With L. BOOTH & SONS,
MECHANICAL ENGINEERS AND DEALERS IN

Machinery and Mining Supplies

AGENTS Union Gasoline Hoists, Joshua Hendy Stamp
Mills, Rock Breakers, Ore Crushers, Davis Horse White, Dean
and Marsh Steam Pumps, Pennsylvania Boiler Works, Chandler
Taylor Engines, Agent Dodge Manufacturing Co's Wood-
Split Pulleys and Power Transmission Machinery.
Rubber and Leather Belting and Oils.

338 North Main street, **BAKER BLOCK**, Los Angeles, Cal.

WOODBURY CONCENTRATOR



No. 141 First St., - San Francisco



AINSWORTH NO. 1

SENSIBILITY.....1-200 MILLIGRAMME
This is a short beam balance and especially
adapted for smelters and assay offices where ex-
treme accuracy and rapidity are perquisites.
Complete catalogue of Assayers' and Chemists'
supplies, including this and other balances, mailed
upon application. **SELLING AGENTS,**

The Denver Fire Clay Co.,
1742-1746 Champa St., Denver, Colo.
P. O. BOX, 1540

Rix Compressed Air Machinery Co.



11 and 13 First Street, - San Francisco, Cal.

MANUFACTURERS OF

Pneumatic Machinery of all kinds,
Rock Drills,
Air Compressors,
Compressed Air Hoisting Engines,
Stone Cutting and Carving Tools, driven by
Compressed air.
Compressed Air Machinery for quarrying stone
Compressed Air Pumps for both cold & hot air
Appliances for reheating compressed air.
"Ferrite" Shoes and Dies.
Projectile Steel Shoes and Dies,
Guaranteed to be the most economical Shoe and Die
on the market.

ALSO DEALERS IN

General Mining Machinery

Send for Latest Catalogue.

FULL LINE OF Chemical Glassware

Of every descrip-
tion carried in stock,
and sold wholesale
and retail at

**EASTERN
PRICES**

BY THE

**Pacific Optical
Company.**



Manufacturers and Importers

245 SOUTH SPRING STREET,
LOS ANGELES, CAL.

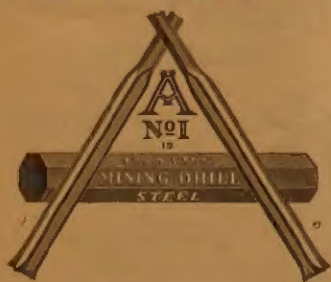
We also carry a full line of Magni-
fiers, Microscopes, Compasses, Bar-
ometers, Surveying Instruments, Ther-
mometers, and Hydrometers in stock
in both our wholesale and retail
departments.

SEND FOR OUR PRICES

ALPHABETICAL INDEX TO ADVERTISERS

John Wigmore and Sons Co.,
GENERAL MINING SUPPLIES

HEAVY HARDWARE IRON AND STEEL



SOLE AGENTS FOR
CANTON DRILL STEEL

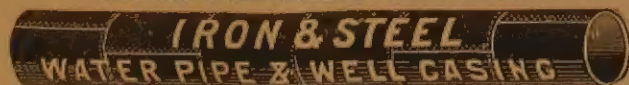
John A. Roebling's Sons Co's
WIRE CABLES.

Giant Powder

117 to 123 S. LOS ANGELES ST.
LOS ANGELES, CAL.

CONSOLIDATED PIPE COMPANY.

IRON AND STEEL WATER PIPE A SPECIALTY



73-889 STEPHENSON AVENUE, LOS ANGELES, CAL.

A. C. HARPER, Proprietor.

Telephone Main 420

Post Office Box 867

W. O. ABBOTT, ASSAYER

ASSAYING IN ALL ITS BRANCHES
CHEMICAL DETERMINATIONS ACCURATELY MADE

TOMBSTONE - - - ARIZONA

POSITIONS WANTED

WANTED—POSITION AS MINE FORE-
man by first-class Miner who is also
capable Assayer, has had 14 years practical ex-
perience in underground mining in California.
References if required.

Address QUARTZ,
Mining Journal

THE LOS ANGELES MINING BUREAU.

THE LOS ANGELES WINING SCHOOL
Cor. Temple and New High Sts., Los Angeles.

We have Eastern and foreign correspondents who are seeking good mining properties for investment. This Bureau will examine and place choice mining properties in California, Nevada, Arizona, New and Old Mexico. Critical and accurate tests of ore made. Best references given. For any information, address DR. STEPHEN BOWERS, President; H. C. SIGLER, Secretary.

FOR SALE!

J. Mait's Dry Gold Saver.

Never been used \$45, cost \$90.

* W. W. Sale, 401 Market St.,
San Francisco.

BYRON JACKSON MACHINE WORKS

625 6th STREET

San Francisco, - - California
MANUFACTURERS OF

Jackson's Single-Valve Cross-Compound Steam Engines.
"Light Weight" Oil Motors,
"Whirlpool" Centrifugal Pumps
"Light Weight" Horse Forks,
"Feeders" for Threshing Machines
"Eclipse" Stackers, and
"Acme" Hay Rakes.



WHACKING PUMP AND STEAM ENGINE FOR
10 FOOT LIFT.



Compound Pump 300 feet for Hydraulic Miners

VON SCHULZ & LOW

ASSAYERS, CHEMISTS, and BULLION DEALERS.

P.O. Drawer 1537 1746 Champa St., DENVER, COLO

Prices for Specimen assays: Gold, Silver, Lead or Copper, \$1.00 each; any two, \$1.50; any three, \$2.50. Complete price list and sample bags for mailing furnished on application.

M. HUGHES WM. GEHRING

Standard Iron Works
MINING MACHINERY

Castings in Iron and Brass, Shoes
and Dies, Pumps, Engines,
Boilers, Windmills.

**Blacksmithing and Machine Work
of Every Description.**

Cor. 7th and L Sts., San Diego, Cal

OTTO HECKELMANN

FERDINAND McCANN

ASSAYERS AND CHEMISTS.**Heckelmann & McCann + + Bullion Dealers**

Cash paid for all kinds of Gold, Silver and Ores. All assays
and Chemical Analysis at Mexican Silver Rates, 50
per cent. Loss than American Price.

PUENTE DE SAN FRANCISCO, No. 6

CITY OF MEXICO

**Mexican, American and Foreign Patents,
TRADEMARKS, ETC.**

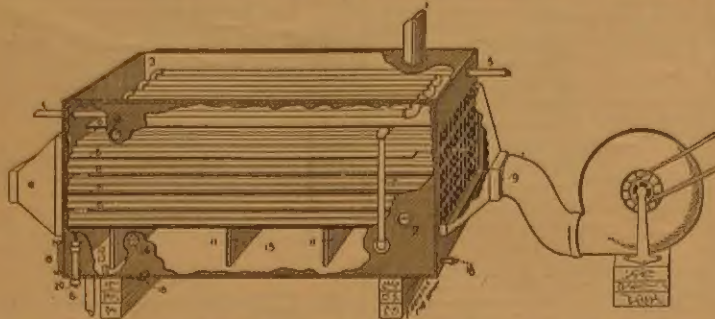
Reports on Mining and Other Properties.

Proprietors of *Weekly Anglo-American*, a first-class Advertising Medium.
Established 8 Years.

C. H. M. y Agramonte,

P. O. Box 388. Cable Address, "Agra".

CITY OF MEXICO, MEXICO.

**Kellers' New Improved Feed Water Heater, Purifier,
Condenser, and Hot Air Blast Combined.**

Built entirely upon new mechanical lines to that of all other Heaters; 30 per cent. of fuel saved, and Steam condensed saving nearly one half of Water Bill.

No compounds needed to keep boilers from scaling as all impurities are precipitated and lodged in the tank.

Feed water is superheated after it leaves the pump and goes to the boiler at boiling temperature without "back pressure" on engine or no charge for Device; the Thermometer and Back Pressure Gage registers results.

180 deg. of hot air forced out of device which can be utilized for drying or heating purposes or carried under the boiler furnaces as a force draft. The foul air can all be drawn out of mine with this same attachment. Where the air is not required leave off the Fan, it will not condense quite so fast, but other results will be the same. This Device is endorsed by practical Mechanics and the largest Smelters and Plants in the country. THIS IS THE ONLY HEATER ENDORSED BY THE AMERICAN INSTITUTE OF MINING ENGINEERS. Send for Descriptive Catalogue.

Star Boiler, Sheet Iron and Feed Water Heater Works,

2166-76 FIFTEENTH STREET,

DENVER, COLORADO

THEODOR LEXOW

195 Broadway New York

Importers of

CARBONS

FOR —
DIAMOND DRILLS and all Mechanical
Purposes

Henry Demmert

J. HOWARD WILSON

Assayer & Chemist

A Specialty Made of Umpire Work.

306 Santa Fe Ave., Pueblo, Colo.

A. Kratzmer

Iron and Brass Castings of all kinds,
Shoes and Dies, Cams, Busses, Tappets,
Mortars, etc., etc.. Complete

Stamp Mills

of any size made and Sold at strictly

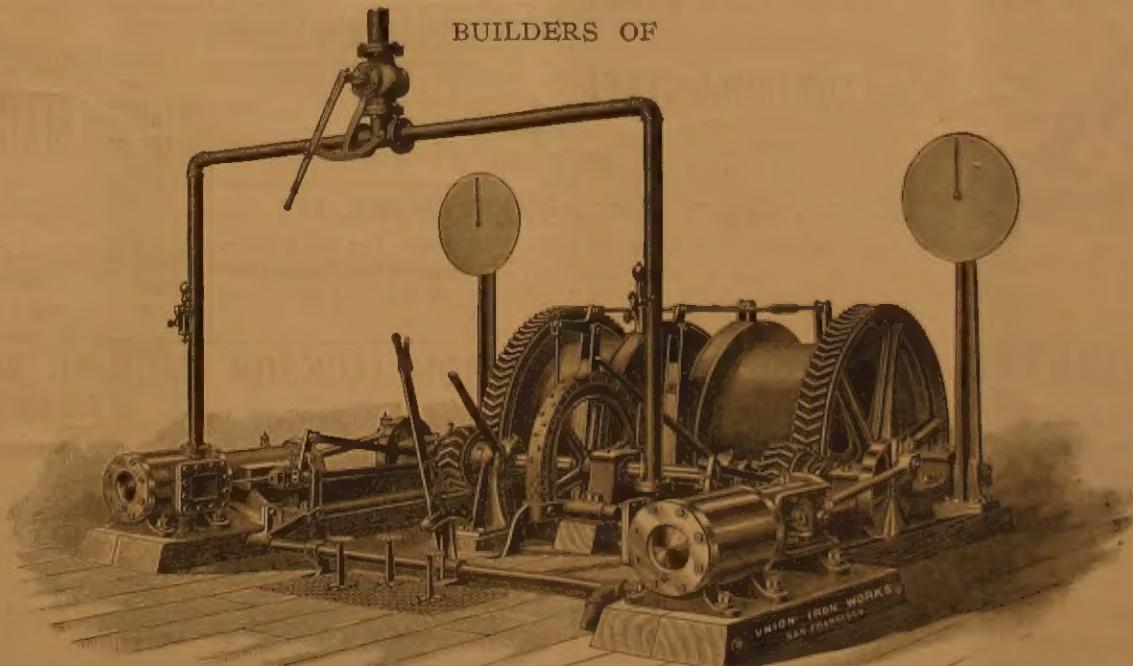
San Francisco Prices.

Correspondence Solicited.

BAKERSFIELD, CALIFORNIA.

UNION IRON WORKS

BUILDERS OF

**Mining, Milling, Concentrating and Smelting Machinery**

222 MARKET STREET, SAN FRANCISCO, CAL.

SEND FOR NEW CATALOGUE

C. W. KEMPTON
MINING ENGINEER

Oro Blanco, Arizona
30 years experience in exploration, mining and
milling. 10 years as superintendent and manager,
Boston, New York, and Chicago references.

G. WHEATLEY,
Mines and Mining

CORRESPONDENCE SOLICITED
LOS ANGELES, - - CAL.

JOHN. T. REED

Assayer and
Analytical Chemist

Assays made for all valuable metals. Analy-
sis made of all valuable minerals. Special at-
tention given to the sampling of mines. Esti-
mating the value of and testing the nature of
their ores. 100 pound lots of ore sampled, and
working tests made by Cyanide and Amalga-
mation Processes.

OFFICE 522 COURT STREET,
San Bernardino, - - California

**Pacific Amalgamator**

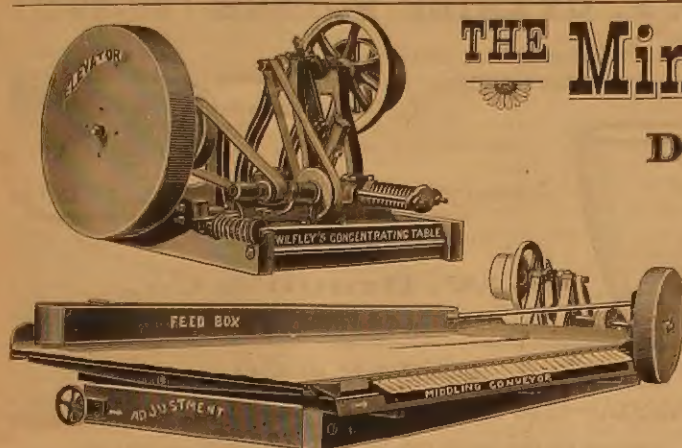
PAT. APRIL 20, 1897

FOR PLACER OR MILL USE

No other plate necessary where the Pacific
Amalgamator is used. These machines are
sent out with a Guarantee backed by people
who are responsible for what they say. They
will place them in mills and sell subject to doing
amount and character of work guaranteed be-
fore payment is made.

Mills in all parts of the country are throwing out
plates and replacing them with Pacific Amalgamators

Pacific Mining Machinery Co., 129 First St., San Francisco

**THE Mine AND Smelter Supply Co.**
DENVER, COLORADO

ARE SOLE AGENTS FOR THE

**WILFLEY
CONCENTRATOR**

and claim for it BETTER work than any Concentra-
tor made, with a capacity of from 15 to 25 tons per day
of 24 hours. It is simplicity itself. No moving belts
or intricate parts. Any one can learn to operate in an
hour.

For confirmation of all of the above we refer to Henry Lowe, Puzzle Mine, Breckenridge, Colo.;
M. R. Smith Concentrator, Golden, Colo.; Mary Murphy Mine, St. Elmo, Colo.; W. R. Renshaw;
Mayflower Mill, Idaho Springs, Colo.; H. E. Woods, Denver, Colo.; Standard Mill, Wallace, Idaho
Smuggler Mill, Aspen, Colo.; Smuggler Union Mill, Telluride, Colo.

BRECKENRIDGE, COLO., Dec. 1, 1896.

THE MINE AND SMELTER SUPPLY CO., DENVER, COLO.

GENTLEMEN:—You asked us what experience we have had with the Wilfley Table, and we
would state that after trying 4 Woodburys, 3 True Vanners, 1 Johnston, 1 Embury and Electrical Pro-
cess; Harte, Jig and Buddies, we have found that the Wilfley Table is the only table that has given us
satisfaction. We are using two tables, at a profit to our mill, where all other devices have proven a
failure, and we can heartily recommend them to any intending purchasers. Yours very truly,
(Signed), R. DE BARNEUER, Supt.

We also Handle the Huson Wire Tramway.

These Tables have displaced belt tables of almost every make,
as is shown by letters in our possession.

Price = \$450.

**Assayers AND
Chemists
SUPPLIES**

MANUFACTURERS OF

Crucibles,
Scorifiers,
Muffles,

— AND —

• FIRE BRICK •

— AGENTS FOR —

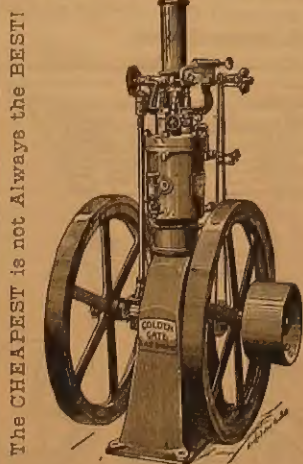
Baker & Adamson's Celebrated
Acids and Chemicals

— DEALERS IN —

Glassware,
Porcelaine
Goods, Etc.

— THE —

Standard Fire Brick Company,
Pueblo, Denver, Colo.

**THE GOLDEN GATE
Gas or Gasoline Engine
Mining Hoists A Specialty**

MADE BY
ADAM SCHILLING & SONS
211 213 Main St., San Francisco.
Send for Circulars and state Horse Power
Required.

THE CHEAPEST is not Always the BEST!

POSITIVE STEADY MOTION!

THOUSANDS Now in Use Over the WorldTRUAX PATENT
IMPROVED

Automatic Ore Cars.

THE ARE THE BEST
AND CHEAPEST.

Truax Mfg Co.

DENVER, COLORADO.

The Only Exclusive Ore Car Manufacturers in America.

Pat. Jan. 5, '92, Aug. 27, '95.

Send for Catalogue, or call on your dealer for Truax Cars.

The "Journal" OfficeIs located in the Stimson Block
LOS ANGELES, CAL.**ALL THE MINING CAMPS OF UTAH AND COLORADO**

ARE LOCATED ON OR REACHED BY THE

RIO GRANDE WESTERN RAILWAY

MERCUR

JOHANNESBURG

AMERICA

NEW

WONDERFUL

CAMP

45 MILES FROM

SALT LAKE CITY



CRIPPLE CREEK

THE GREATEST GOLD

CAMP

IN THE WORLD

ONLY

4

YEARS OLD

200 SHIPPING MINES

DISTRICT

THE SHORTEST, QUICKEST AND MOST DIRECT ROUTE TO

MERCUR AND CRIPPLE CREEK

FOR RATES OR ANY OTHER INFORMATION APPLY TO

W. H. SNEDAKER,

SALT LAKE CITY

D. C. DODGE,

S. H. BARCOCK,

F. A. WADLEIGH,

SALT LAKE CITY

S. S. MACHINERY CO.

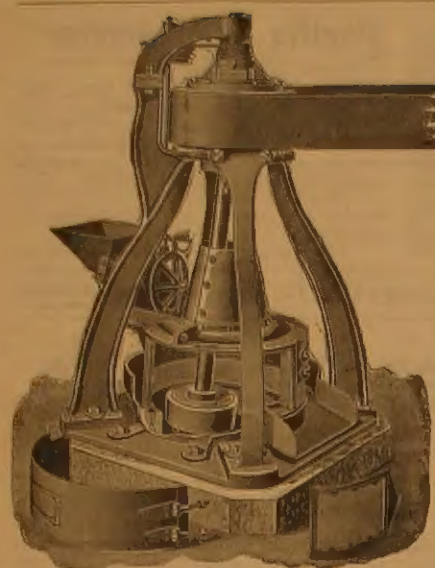
Buy, Sell and Trade in All Kinds of SECOND-HAND
Mining and Wood Working Machinery.

CORRESPONDENCE SOLICITED.

OFFICE: 1529 Lawrence
WORKS: Sixth and Market

DENVER, COLORADO

TELEPHONE Office, 129
Works, 1234



THE GRIFFIN MILL

The only Perfect Pulverizer Working both Wet or Dry Process

NO JOURNALS IN PULVERIZING CHAMBER.

Delivers a finished product. Will pulverize 1 to 2 tons per hour on Portland Cement, Quartz or ores depending on hardness of material and firmness of product.

— Manufactured and Sold by —

Bradley Pulverizer Co.,

92 STATE STREET,
Boston, Mass.

Assayers' Miners' and Chemists' Supplies



Crucibles, Muffles, Scorifiers, Furnaces, Cupels, &c., &c.

C. P. CYANIDE POTASH (98-99 PER CENT)

Dioxide Sodium, Zinc Shavings, Borax Glass, Litharge, C. P. Test Lead



AND EVERYTHING REQUIRED BY

Assayers' Miners' and Chemists'

We invite Correspondence and solicit orders.

F. W. Braun & Co.,

401 to 407 N. Main St., Los Angeles

EAGAR & CO.

Assay Office and Sampling Works.

Assaying, Mill Tests, Cyanide Tests, Etc. Special Attention to work sent by Mail.

No. 10 Stevenson Street,

San Francisco, Cal.

Chas. P. Grimwood,
Mining Engineer and Metallurgist
Laboratory, 214 Pine Street, SAN FRANCISCO, CAL.

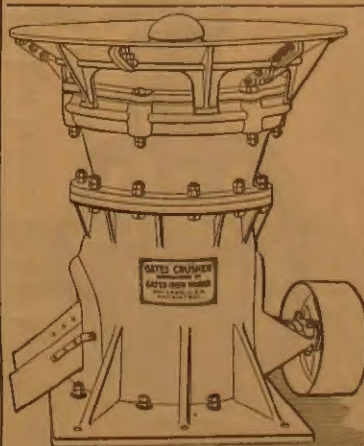
WM. H. HOEGEE

MANUFACTURER OF

Oiled Clothing, Awnings, Tents, Sails, Tarpaulins, Flags, Banners, and Camp Furniture. Tents and Canvas Floors for Rent. Jobber of Cotton Duck, Etc.

136 S. Main Street,

LOS ANGELES, CAL.



A SELF-EVIDENT FACT.

In the treatment of many low grade ores, the margin of profit is sometimes so small that great care and judgment is required in the selection of properly designed machines and appliances as well as in the arrangement of the same. The manufacture of

MINING MACHINERY

of every description is our specialty. Our new shops were specially designed for this purpose.

Gates Rock and Ore Breakers

Have acquired a reputation for superiority world-wide in extent.

Crushing Rolls, Stamp Mills, Smelters, Concentrators, Pans, Settlers, Hoisting, Conveying and Pumping Machinery.

Complete Installations for all Methods of Treatment.

For Catalogues and further information, address

Gates Iron Works, 650 Elston Ave, Chicago, U.S.A.

New York
136 Liberty St.

London, E. C.
73 A Queen Victoria St.

Butte, Mont.
Silver Bow Block

City of Mexico
Calle de Santa No. 3

JEFFREY

Roller, Steel and Special Chains

ELEVATING AND CONVEYING MACHINERY.

FOR HANDLING MATERIAL OF ALL KINDS.

POWER TRANSMISSION MACHINERY.

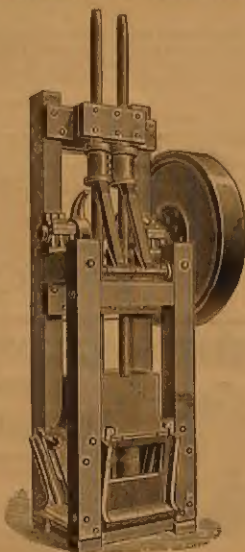
COAL MINING MACHINERY.

Wire Cable Conveyors.

For long and short distance conveying.

THE JEFFREY MFG. CO. 844 Equitable Bldg. DENVER, COLO.
Columbus, Ohio. Send for Catalogue.

"HENDY" IMPROVED



Triple Discharge Two-Stamp

MILL

Capacity six to ten tons per day
PRICE, \$450.00

JOSHUA HENDY MACHINE WORKS

38 to 44 Fremont St., San Francisco, Cal.

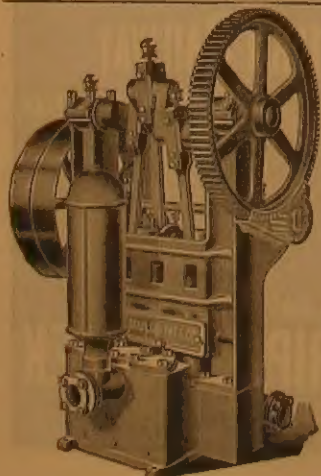
Triplex Power Pumps, FOR EVERY SERVICE.

No Plant too Large
No Plant too Small

All the Information you desire by addressing, stating your wants,

J. I. Hathaway,
SPECIAL AGENT,

122 W. 2d Street, Los Angeles



ENTERED AT THE POST OFFICE AT LOS ANGELES, CALIFORNIA,
AS SECOND CLASS MAIL MATTER.

F. W. EDELSTEN, Editor.

LIONEL A. SHELDON,
Special Contributor.

ULRICH KNOCH, Publisher

OFFICE, Stimson Block, Los Angeles, Cal

SUBSCRIPTION PRICE:

For United States, Mexico and Canada.....	\$2.50 per annum
" " " ""	1.25 six months
All other countries in the postal union.....	3.50 per annum
" " " ""	1.75 six months

ISSUED SEMI-MONTHLY

SPECIAL REPRESENTATIVES:

The Journal is kept on file at the following places where contracts for advertising can be made:

San Francisco, Cal.—E. C. Drake, 64 and 65 Merchants Exchange.

Salt Lake, Utah.—Art Advertising Supply Co., 60 West and South Street.

Denver, Colorado.—Ed. P. Eppich & Co., 47 Bank Building.

Kansas City and St. Louis, Mo.—C. M. Venzey, 430 Nelson Bldg., Kansas City.

Chicago, Ill.—Newberg & Co., Room 765 Monadnock Block.

New York City, Wm. Edselin, Jr., 106 Broadway.

City of Mexico, Mexico.—O. H. M. Agramonte, 17 Cinco De Mayo.

ADVERTISING RATES FURNISHED ON APPLICATION.

THE SILVER PROBLEM.

This country has witnessed the success with which corporations, producers, trusts and syndicates have been formed and combined to control certain articles of commerce and trade, but our statesmen cannot see the necessity of securing a combination by treaty of the silver producing countries of North and South America, with possibly Australia. This is the only means by which England and the Jews of Europe will be deprived of the trade and profit in American silver with the eastern countries and the Orient.

money lenders of Europe will have to buy our coin as they did prior to 1873. The trade in silver with the east and Asia will be conducted, as it should be, by the silver producers themselves and the trade resulting therefrom will flow into the United States, or if not, then England will have to pay a higher price for it, and we will get a better price for the silver if we do not gain the eastern trade. So long as England and Europe can buy cheap American silver in bars and sell it to the east and Asia it is impossible to convince them that there is any gain to be made by them consenting to drop the custom of buying low and selling at the highest figure. For that reason conferences in aid of bimetalism with Europe have failed in the past and will fail in this instance also, and the only cure for it is to force the market price up by the silver producing countries controlling their silver exports at coin value. It is no experiment; it worked well for years, when our silver dollars as soon as they were coined went to Europe and were sold at a premium. European and American international bimetalism is to attempt to fuse the contending interests of buyers and sellers of silver. North and South American international bimetalism by treaty is the combination of producers in the interests of all to secure fair trade and value from foreign purchasers of an American product. The present government is pledged to protection of American industries, and the protection silver requires is to prohibit the export of silver in bars or other form except as U. S. coin, and to negotiate treaties with other silver producing countries to do the same.

HARBOR IMPROVEMENT DELAYED.

voted the money for and now demand. When the Secretary of War took office, he swore to obey the laws of the land; but his first act has been to set aside a law passed by Congress, and refer the matter back for further consideration and debate. A more complete case of a Cabinet officer dictating to Congress what should be done, after the fashion of a European autocratic ruler, could not be found. As a consequence, no bids have been called for by advertisement, and no work has been done towards the construction of a harbor. Railway construction into the interior States of Arizona, Nevada and Utah, which was to commence with the harbor improvements, has been delayed. The railroads now in operation, and new ones which have been projected to terminate at San Pedro, have been delayed in consequence in beginning their intended improvements. Building has been delayed, to accommodate the increased trade which would result from the harbor construction. Our desert mining interests have in consequence been retarded and development prevented, by the action of a member of government who received their first election boom in Southern California. The Secretary of War considers himself the supreme judge of Congressional acts relating to his department, in place of being the paid servant of the people for carrying them into effect. The loudly expressed curses of the miners of the south west prompt this article, which we trust General Alger will read. The commercial organizations of Southern California have sent vigorous protests to the President at Washington, criticizing in scathing denunciations the action of the Secretary of War, in regard to his total disregard of the wishes of Congress, as expressed in the act providing for the improvement of San Pedro harbor.

THE STATE MINING LAW.

The enactment of the new State mining law was made to prevent the pernicious practice of yearly relocating mining claims without working the annual assessment of \$100, and to prevent the wholesale location of claims by one party, thereby preventing others from locating claims. Both the new State law and the old Federal law must now be complied with, and they do not in any way conflict. The new State law was made to supplement the old Federal law, and refers to location, recording and work during the first sixty days, while the old Federal law refers to annual assessment work of \$100 of each year.

We published the full text of the new law in our issue of 15th ult. The new one is a wise enactment made in the interests of labor and industry, and to prevent monopoly and the do-nothing policy of holding mining claims and waiting for some one to come round and buy you out. The new state mining law is certainly going to ruin the business of the professional claim locator, and the industrious working prospector and miner will get the benefit, and be made industrious.

ly happy in consequence, for, as Sir John Lubbock said, "the secret of happiness is industry." To be at work in the congenial employment of developing ore makes the industrious prospector happy and often wealthy. Get down on your ledges, gentlemen, for sitting on an outcrop of a vein never produced ore or make a miner rich, but development does both.

International Gold Mining Convention.

At a meeting of the members of the National Bureau of Information, held in the rooms of the organization in the city of Denver, April 3, 1897, it was decided to take the initiative in the matter of organizing the first International Gold Mining Convention, to be held on the 15th and 16th of June, 1897. A temporary committee was then formed, consisting of the following-named gentlemen, who were empowered to name a permanent committee or committees to take charge of the arrangements for holding the convention: Irwin Mahon, chairman, Joseph T. Cornforth, R. F. Hunter and H. W. Betts.

On the following Monday morning, April 5th, this committee convened in the office of Mr. J. T. Cornforth, who was then and still is the back-bone of this movement, advancing from his own personal account the money necessary to lay the foundation work. Mr. Thomas B. Everett, president of the Miners' Bureau of Information, also rendered financial aid, as did Mr. L. H. Flanders, another officer of the Bureau of Information. To these gentlemen much credit is due for the success of this movement.

On Saturday afternoon, April 10th, at 2 o'clock, Chairman Irwin Mahon read the report of the temporary committee, which was unanimously adopted, and on motion, seconded and unanimously carried. The Hon. Alva Adams, Governor of Colorado, was made president, David H. Moffat, president of the First National Bank, treasurer, and Irwin Mahon, secretary.

As in all great movements of a public nature, at this point of the proceeding a little friction arose among certain elements outside of the promoters, which delayed matters for some weeks, requiring a change of dates, and on May 4th, 1897, the temporary committee having the matter in charge, Messrs. Thomas B. Everett, R. H. Buck, and Robert F. Hunter, made the report to the joint committee of twenty, representing the National Miners' Bureau of Information, the Mining Exchange, the Real Estate Exchange, and Denver Chamber of Commerce and Board of Trade, which was adopted and read as follows. And on Thursday afternoon, May 8th, at 4 o'clock, the executive committee began business, establishing headquarters in the rooms of the Miners' National Bureau of Information, 1709-13 California street, Denver, Colorado. And from that moment, evidences in the way of responses to the call from all parts of the county began to present themselves to the committee, which warrants them in believing that the first International Gold Mining Convention will be the greatest and most representative assembly ever convened in the interest of mining in the history of the world.

The following is the report in full of the committee of three:

DENVER, COL., May 4, '97.

TO THE JOINT COMMITTEE OF TWENTY:

Your committee of three, to consider the most favorable plan in proceeding to organize and call together the proposed International

Gold Mining Convention, beg leave to report as follows:

GENTLEMEN:

Your special committee of three appointed by your honorable body, April 30th, 1897, instructed to formulate a plan for opening and conducting the said International Gold Mining Convention, have discharged the duty imposed upon them, and beg leave to report the following as the result of their deliberations, for your favorable consideration and adoption.

FIRST: That the name of this organization shall be The International Gold Mining Convention, to be held July 7th, 8th and 9th, in the city of Denver.

SECOND: That the first meeting of the convention shall be held on the 7th day of July, 1897, at 10 o'clock, a. m., and thereafter from time to time as the convention may determine.

THIRD: That the temporary officers, for the purpose of calling the convention together and proceeding to permanent organization, shall be: The Hon. Alva Adams, Governor of Colorado, president; The Hon. J. L. Brush, Lieut. Gov. of Colorado, vice-president.

FOURTH: The Board of Directors shall consist of the list attached hereto, with power to make additions from time to time, as they may deem proper. An Executive Committee of eleven, of whom six shall constitute a quorum, with full power to call said convention, and carry forward to completion its organization, and the transaction of all business pertaining thereto, shall be selected by the joint committee of twenty.

FIFTH: After the temporary organization at the opening of the convention July 7th, the convention will create its own permanent organization and plan of proceeding.

SIXTH: That the Governors and Lieutenant-Governors of the several States and Territories taking part in convention shall be Vice-Presidents, and that they shall be requested to appoint delegates to the convention.

SEVENTH: That the chairmen of all Boards of County Commissioners, Mayors of cities and towns, presidents of all Chambers of Commerce, Boards of Trade, Mining Bureaus, Mining Exchanges, Real Estate Exchanges, Miners' Unions, and Trades and Labor Assemblies, shall be delegates and that they be requested to appoint delegates from their district organizations to attend said convention.

EIGHTH: Basis of representation.

The Governor of each State and Territory to name 30 delegates at large.
The County Commissioners of each County to name 5 delegates.
The Mayor of each City and Town to name 5 delegates.
And one additional for each 10,000 population or fraction thereof.
Each Mining Bureau.....to name 5 delegates.
Each Mining Exchange.....to name 5 delegates.
Each Real Estate Exchange.....to name 5 delegates.
Each Chamber of Commerce.....to name 5 delegates.
Each Board of Trade.....to name 5 delegates.
Each Miners' Union.....to name 5 delegates.
Each Trade and Labor Assembly.....to name 5 delegates.
All other Commercial Bodies.....to name 5 delegates.

THOMAS B. EVERETT,
R. H. BUCK,
ROBT. F. HUNTER.

COLORADO'S MINERAL YIELD.

Record of Colorado from the day of the first panning.

The following table shows the coinage value (silver \$1.29 per ounce) of the gold and silver produced in Colorado since the early days:

YEAR	GOLD	SILVER	TOTAL
1859 to 1870	\$27,215,081	\$1,800,000	\$29,015,081
1871	2,000,000	1,020,018	3,020,018
1872	1,725,000	2,015,000	3,740,000
1873	1,700,000	2,100,000	3,800,000
1874	2,000,000	3,000,000	5,000,000
1875	2,101,475	3,123,012	5,224,487
1876	2,726,215	3,315,552	6,041,767
1877	2,148,707	3,720,879	5,869,586
1878	2,340,384	6,041,807	8,382,191
1879	2,020,320	23,500,995	25,521,315
1880	2,275,500	18,615,000	20,890,500
1881	2,200,000	17,000,000	19,200,000
1882	2,200,000	16,000,000	18,200,000
1883	4,100,000	17,370,000	21,470,000
1884	4,300,000	16,000,000	20,300,000
1885	4,155,794	18,924,557	23,080,351
1886	4,448,447	18,200,000	22,648,447
1887	4,474,387	19,000,000	23,474,387
1888	5,738,000	24,272,945	30,010,945
1889	5,638,217	26,100,000	31,738,217
1890	4,010,229	25,788,819	29,799,048
1891	4,764,880	27,200,000	31,964,880
1892	5,839,021	31,475,072	37,314,093
1893	7,487,071	29,432,882	36,919,953
1894	10,618,463	39,704,275	50,322,738
1895	17,240,405	28,111,895	45,352,300
1896	14,094,000.02	29,100,000.70	43,194,000.72

(Signed) IRWIN MAHON,
Secretary Executive Committee,
First International Gold Mining Convention.

Net Output of Butte Mines.

For the purposes of making up the assessment rolls for Silver Bow county the law requires that each and every mining company must file with the county assessor a statement of the earnings and expenditures of the fiscal year past. The following companies and mining men have handed in their reports covering the net proceeds from mining operations in the Butte district for the year:

Anaconda	\$4,375,010
Boston & Montana	2,030,470
Montana Ore Purchasing Co.	160,000
Butte & Boston	86,895
Colorado Company	48,975
W. A. Clark's eight mines	35,870
Alice Mining Company	40,025
P. A. Largey	2,810
James A. Murray	2,635
Arlington Mining Company	1,760
Lexington	1,115
Moulton Mining Company	935

Total\$6,786,500

Total for 1895 3,634,595

The list is not as yet complete, as for instance the Parrot company has not yet filed its report. In its operations for the year this company has probably made free from operating expenses about \$250,000 from its Butte mines and smelter, but inasmuch as the smelter at Gaylord is in course of construction, the company may not pay its annual dividends, and that the earnings will go into construction work there.

Taking everything into consideration, and the large amount expended in improvements, development work and new machinery, etc., the profits have been very satisfactory to all concerned.—*Western Mining World*.

The Jeffrey Robinson Coal Washing System, which is manufactured by the Jeffrey Manufacturing company of Columbus, Ohio, is receiving much attention at this time from the coal operators in general. Its claims for superiority, efficiency and low cost of operation have been thoroughly demonstrated in the many plants now in use. Among some of the recent orders for complete 400-ton washing plants are the following: Kansas and Texas Coal company, mines at Huntington, Arkansas; Muddy Valley Mining and Manufacturing company, Hollidaysboro, Illinois; the Chickamauga Coal and Coke company, Chickamauga, Ga., and the Tomas Creek Coal and Coke company of Pulaski, Va.

CORRESPONDENCE

COLORADO.

BOULDER, COLO., June 17, '97.

EDITOR JOURNAL:—Boulder City has now in full operation two chlorination plants, one of 50 tons daily capacity; the second, about eight tons in twenty-four hours. The former is owned by the Delano Mining and Milling Company, organized by capitalists from Hartford, Conn., and was built at a cost of not less than \$50,000.

Test trials have been made of almost all grades of mineralized matter, ranging from \$20 to \$100 per ton, with the result that last Thursday, the 10th inst., a brick of gold was cleaned up and moulded, worth about \$3000.960 fine.

It is stated, however, that the company charges \$10 per ton for treatment. This will not help the miner to utilize his low grade stuff, as immense quantities of ore dumps will not average \$10 per ton, and it is for the treatment of this grade of mineralized rock that a new process is needed. The smelters will treat concentrates at \$4, and ore in bulk at \$6.50, from Ward Mining District, or any other sulphide ore, and while it costs not to exceed \$3 per ton for chlorination, yet the miner must pay \$10.

Little was known by outsiders regarding the amount of ore treated to produce the gold brick, or its value per ton.

The second chlorination works is owned by the Kilton Mining and Milling Company, who run a sampling works in connection with the process.

A gold brick, worth about \$1400, was placed on exhibition in the First National Bank windows a fortnight ago, being the first product of this mill.

The tellurides of this county are called refractory, because they cannot be treated economically in the ordinary stamp mill furnished by amalgamating plates and concentrators, yet the smelter has no trouble in working the high and medium grades; but the necessity of the present is a process that will save the values contained in \$10 ore, at a cost of from \$2 to \$3 per ton.

Boulder has been the dumping ground for every new process and concentrator invented during the past 35 years, yet the stamp mill continues to increase in number, while the process man seeks new fields and a more gullible public, if possible, who will purchase his fake invention.

The Bromine mill at Magnolia, erected at a cost of not less than \$100,000, has been pronounced a failure, and is today idle, being another monument of misplaced confidence and reckless extravagance. It is doubtful if it is ever started up again using the bromine process, as over \$20,000 worth of mineral has been wasted in experimenting, until the owner of the Nellie Bly mine would advance no more money for mining on ore that contained little or no value, when treated by a process the inventors claimed would save at least 95 per cent of the gold and silver contained in the mineral. The mine was closed down with the company heavily indebted to miners and merchants, with no desire to pay its debts.

A cyanide mill was built in Boulder canon two years ago, at a cost of \$50,000, for the purpose of treating low grade telluride ores. It scarcely started before the work was closed down, and last year sold at sheriff's sale for \$12,000 to D. H. Moffat.

Notwithstanding these monumental fail-

ures, other reckless mortals, who have no regard for other people's money, will come and build experimental machines, at enormous expense, which have failure written on every piece of machinery.

A new inter-mountain railway, 30 inch gauge, will be built from Boulder to the great mining camp of Ward, for the purpose of delivering the ore from the mines to smelters at a much less cost, and carrying passengers from the Union Pacific and Gulf depot of this city to the several mining towns along the route. This company promises to build a plant that will treat 500 tons of low grade ore daily, at figures that will treat \$10 ore at a profit to the miner. The transportation of stuff from mine to mill will be less than \$1 per ton, while the price of treatment will not be over \$2.50. With such a process, the millions of tons on the dumps throughout the county could be utilized to a profit.

The first class telluride ores are marvelously rich in gold and silver, running from \$10 to \$100 per pound; but this grade is found in small streaks in the vein, while the smelting ore will average \$500 first class, and so on, according to the amount of sylvanite contained in the rock.

Leasers at the Golden Age mine, Jamestown, Inter-Ocean at Sunshine, Rip Van Dam, and other mines, are taking out wonderful ore, containing pure gold in quantities.

The mining industry of this country is improving, and sales of properties have been numerous this year. Huge tunnel schemes have been incorporated, and men placed at work to run them, by the aid of air-drills, through the richest gold districts of this country. Development work is being carried on extensively in all our mining districts, opening out on bodies for stopping hereafter.

WM. M. RULE.

CALIFORNIA.

ESCONDIDO, CAL., June 5th.

EDITOR JOURNAL:—As your special correspondent for this part of the country, I give you the following news: One of the richest mines has passed into the hands of eastern capitalists. May 24th, Dr. John P. Frizell, of Escondido, Cal., sold to the Du Quesne Gold and Silver Mining and Milling Co., of which J. R. Hedges, of Pittsburg, Pa., and William T. Spieth, of Cleveland, Ohio, are the leading spirits, for \$100,000. The purchasing company is reputed to have about \$4,000,000 capital, and intends to invest it in California mines. This is the second big sale that Dr. Frizell has consummated within the last few months in this section of the country.

The mines were allowed to lie idle for fifty-five years until Americans came into the country and prospected them, then some little work was done, but by men inexperienced and with small capital. The deepest shaft is only 55 feet to water, but the ore has been uncovered on the surface a distance of over two miles. The last run of 35 tons in a Griffin mill cleared up \$700. The mine has recently been worked by the Escondido Mining Company, a small corporation, which transferred its interest to the aforesaid eastern company.

The property was experted by Ben. P. Little, a mining engineer of Pittsburg, Pa., and J. Schofield, of Denver, Colorado, also a mining engineer. Mr. Schofield, after examining the mine and agreeing with Mr. Little as to the report to be made, went east to meet the new purchasers personally, while Mr. Little remains to take charge of the work

of development for the present. Fifty men were put to work on the first of June and a large mill will be ordered.

Any one wishing any additional information in regard to the Escondido mine can obtain it by seeing a copy of the *State Mineralogist Reports*, VII, IX, and XII, pages 240, 382, and 524. Please send me some extra copies of the *Journal*, and oblige,

Yours, "ESCONDIDO."

Tuolumne's Mines and Mining.

Tuolumne county has at last come to the front as the principal gold producer of California. The question of profitable deepening is a *fait accompli*, as some of our mines are down over 1000 feet to 1500 feet, a great number over 700, richer rock is discovered at those depths than that found above in the shallow levels, hence, it is no longer a presumption. Those who invest on the mother lode, and can find a *surface prospect*, in the regular metallic states, in the seams of quartz that permeate the vein matter, need have no fear that a chute or chimney will be found, a depth is attained, steadily going downwards, which will fully justify large expenditures in equipment and exploitation. This is now a fact fully demonstrated; but strangers and some experts who visit our mines are non-plussed when examining on the mother lode. They lack that practical experience on this mammoth fissure, so different from the mines they are accustomed to examine—often have disgusted—because they do not resemble the mines of Utah, Colorado, Idaho, Alaska, Africa, Australia or New Zealand. The mother lode is a study in itself—ergo, only those who fully understand its system should be relied on to pass judgment. A man must be educated by long practical experience on the lode, and know all the peculiar characteristics of its formation, with deep observation, before he will be in a position to satisfy himself, much less advise and recommend others to become purchasers, or condemn that they know not of. The want of this proper knowledge has been in too many instances the chief causes why Tuolumne's mines have remained dormant so many years, having had to rely on outside experting, gave this grand old county a black eye; but a change has taken place, for, by skillful treatment, this eccymosed condition has passed away. Investors rely now on practical men that know the system and are able to advise, and the advice is heeded. Thus, today, she is recognized as the banner gold-bearing county of the state. Why not? By close conservative computation, we find Tuolumne has produced in the precious metal, since 1849, about \$220,000,000. Is that not alone sufficient to prove our great auriferous deposits existed, and do exist, for all this wealth did not come to the earth in a snow storm, but came from below upwards. Today quartz mining is but in its infancy. There is now time enough for the investor to get in. Other far off fields lend enchantment to the view, as the old adage says, "Cows at a distance have long horns."

The mining investor is not content at home; in this instance, the rush to British Columbia exemplifies the above quotation. Our gold seekers are leaving California for distant gold fields, which they will regret when the good things have slipped from their grasp—hence, now is the time for the astute capitalist to take hold and purchase developed and undeveloped mines. My advice is to buy good prospects and make the mine, rather than buy a made mine at an extravagant figure and large amounts extracted and gone.

I will now in a few words state why the mother lode in this country possesses advantages over other districts. All that is valuable is generally contained within 600 feet in width, being concentrated, and in close continuity and contiguity, with genial eruptive dykes, intersecting and paralleling the veins. These diorite and diabase dykes are the primary cause of the chutes of rich ore, as we find them here in Calaveras and Amador. The fissure is larger and more diffused. That rich veins are found in the counties mentioned is too well known, as, for instance, Utica, Kennedy, Gynn Sunda, Keystone and Old Empire of Plymouth—but of larger extent and lower in grade; hence, more expensive to mine, needing more and heavier timbers. I would rather have a two foot vein, that would pay \$100 per ton, than a 40 or 60 foot vein paying \$10 per ton. Our veins are not so large, but of higher grade, being concentrated. Then, here we have four payable veins within the fissure—each and all can be worked at no unusual expense. I find if a chute is found on one vein here, the line will traverse all of the veins at a certain diverging angle, which, on being worked is easily ascertained.

We have our Rawhides, Jumpers, Dutch App, Golden Lute, and a number of other mines that are producers, and from the outlook will be second to none in the state, and I may say still further, from the Tuolumne River and several miles south east of the latter to the Stanislaus River, we have an unbroken chain of golden mines, all in more or less developed condition, that in the next few years our output of gold will be enormous. Further, we have our last belt—veins in both granite and slate formation, intersected by diorite and grano-diorite dykes. For instance, the Soulsby, Black Oak group, Draper, Eureka, Confidence, Buchanan, from which millions have been extracted, and many others of lesser magnitude—heavy gold producers, of which little is said. There are miles of auriferous lands that await the prospector and investor. This upper belt section is well watered, so that power is easily obtained; hundreds of mines are now being developed in this belt, even as far east as twenty-five miles from Sonora, rich finds are daily being reported from this section—space will not permit us to enumerate and give special mention of all its mines; suffice, more actual money has been taken out of this last or upper belt generally than the whole of the mother lode up to date. All of the gulches, creeks and rivers teamed with gold, which came from the erosion and attrition of the quartz veins—nature's quartz mill. These natural sluices have well saved the gold for man to find. If the gold had not been so found, our quartz veins would have for ever remained unworked, for, in the natural order of things, they would have been barren and had no gold to shed.

Our middle belt, the limestone, is the pocket and placer region, from which millions and millions have been unearthed. This product, now scattered to the four corners of the earth, having enriched thousands, and the golden legacy handed down by the successful miner to his heirs and friends all over the known world. The arts and sciences have drawn largely from this source of supply, and much has returned to mother earth and lost to circulation.

West of the limestone belt is found a distinctively sulphuretted channel. The formation is a diorite-schistose structural rock, intersected by diorite dykes. The veins found in

this formation are generally of large size, but contain very little free gold, except near to the surface, there being oxidized. The gold has been freed from its base embrace, but on sinking the values are found almost entirely in arsenical sulphurets. For instance, the Golden Gate mine, celebrated not only for its richness, but for an unprecedented lengthy and costly litigation—lasting for several years, which happily is now ended. This mine is paying regular dividends, is well equipped, with chlorination plants, and all the latest devices for gold saving—20 stamps reduce the ore. In the same formation, we find the old San Guiseppe, that produces the highest gold, as regards fineness, in the world—being 981.1 fine—value \$20.28 per ounce, mint returns. The sulphurets are of very high grade and percentage, from \$1000 per ton and upwards. The Gerrymander, a parallel mine, southeast of Golden Gate—large veins and high grade ore—arsenical sulphurets also in this belt—besides many others southeast.

Thus in this country we have four distinct belts: 1, the mother lode; 2, the diorite schistose; 3, the limestone placer and pocket, and the upper belt. The above are distinct channels.

I predict in the next fifty years fully as much gold and even more lies hidden in our inexhaustible treasure hills than has yet been uncovered. Mining today is a legitimate occupation, wisely and economically conducted, will produce a greater profit to the operator than any other kind of investment. Accept the opportunity that old Tuolumne offers, her hills and mountains bid you welcome. Seek and ye shall find.

ARGUS.

UTAH.

SALT LAKE CITY, June 25, 1897.

EDITOR JOURNAL:—The mining share market this week gave budding evidence of an inclination to throw off the lethargy that has prevailed for some time past. The fact is patent to all capable of judging that stocks, especially the silvers, have reached a level far below real values, and consequently there must shortly be a change in a decided upward movement. Speculation and investment buying is increasing rapidly in the east, and this will soon show its effects in western securities that are equally as safe and pay much higher dividends.

The continued good showing at the Ajax has attracted considerable favorable attention, and the resulting inquiry caused the stock to strengthen materially. Some heavy development work is being done at the properties, and gives good promise. Very little change occurred in Anchor, and practically no business was done in it. Bullion-Beck was again shaded, and it is hardly likely that special interest in the stock will be renewed until dividends, which are still indefinite, come again. The usual shipments of ore are being made, but margins are still light. At the mines no special change is reported. Buckeye is not very active, neither are figures changing materially.

All of the very cheap Centennial-Eureka seems to have been taken up, and offerings, are extremely light under \$50. The properties are reported to be looking well, especially in the lower levels. No particular change occurred in Chloride Point, only light business being reported. The showing at the properties is said to be quite satisfactory. The Dalys were again almost neglected, and quotations changed but little. Daly West is

marketing some of its storage ore, but has almost ceased extraction. Another strike at the Dexter is reported by the management, and the stock toned up somewhat in consequence. The company will probably erect a new mill. Dalton was active at unchanged quotations. Eagle did considerable business at last week's figures, while East Golden Gate continues without life. Four Acres lost some of its new strength.

On the 30th, Geyser-Marion will pay its regular dividend of three cents per share. Demand for the stock was very active, and last week's figures again governed. The security is considered a good buy as an investment. Galena was on the market with some fine ore, as was also Utah. These companies are to have joint hoisting works. At the annual meeting of the Utah, the old directors were re-elected. Little Pittsburg was active, but somewhat lower.

Very little change occurred in Mercur, although a slight reaction followed the sharp advance of the week before. The mines are making a splendid showing, and all the ore extracted goes through the mill. An increase in earnings is already apparent. Mammoth was a little more active, but figures remained about as last week. On the 1600 foot level, another strike of gold ore has occurred. Although Northern Light is looking and doing well, the stock was somewhat shaded and business was only fair.

Ontario will pay its usual dividend on the 30th inst. The stock was unchanged. While the demand continued fairly strong, Omaha was slightly lower. The fight for the control has commenced in the courts. Rover was inactive. Sunbeam made a healthy advance, the change being due to attempted heavy buying by well posted people. Swansea has already declared its July dividend to be paid July 3d. The stock was unchanged, while South Swansea also held its own. No special change occurred in Sacramento, and business in the stock was not heavy. Silver King did but little, and quotations were without change. Another effort is being made to secure a lease on the Sunshine mines and mill. Last week's figures governed.

Very truly yours,

JAMES A. POLLOCK.

Miscellaneous Mining News.

ARIZONA.

Kingman Notes.

J. B. Lane is shipping rich gold ore from the San Francisco district in Mohave county. Mr. Lane has several good properties on which he has been at work for some time.

Charles George was in Kingman from White Hills with a shipment of ore from the Oversight mine, White Hills. He also has a sample shipment from the Free Coinage mine, a parallel vein with the Squattum.

George Klempf, W. L. Debeque, K. T. Brittingham and J. H. Sample have taken a ten month's lease on the Oneida mine from Frank Hawley and have already commenced work on it. The boys have good ore in sight and as all are workers who thoroughly understand chloriding they are in a fair way to take out a neat sum of money each.

J. B. Whitefield has leased the Lookout mine and will commence work on it in a few days. The Maguire boys will put up two arastras and work the ores from the mine.

Thomas McMahon has taken a lease on the Nighthawk mine and has very rich ore in sight. Some of runs twenty-five ounces in gold and two thousand ounces in silver to the ton. Last week he had two tons of the ore worked at the sampler.

H. J. West came into Kingman from Painted Canyon the first of this week and returned the next day. He reports that the Hill and Rice mill is nearing completion and that it will be started up on his return. D. A. Beebe has the contract to haul the ore from the mine to the mill.

Superintendent G. M. Bowers and George Walker went out to the Nighthawk mine, Tuesday June the 15th and let many leases on that property. The Nighthawk will soon be shipping to the sampler at Kingman in carload lots.

Hawley, Carleton and Martinez made a six ton shipment of Oneida ore to the Sampler last week that netted them big money. The mine is one of the best silver properties in the Stockton Hill country.—*Mohave County Miner.*

A Wonderful Arizona Mine.

M. H. Twomey, assistant superintendent of the Commonwealth Mining and Milling company at Pearce, who was on his way to the northern part of the territory June 18th to inspect some mining properties, says that about August 1st the mill will be completed. It is not a stamp mill, but it will have a capacity equal to forty stamps. The ore so far taken out of the mine is so rich that it has been profitably shipped. Seventy-two teams have been employed in hauling it to Cochise station. There is a great deal of ore of a lower grade in the mine ready to be hoisted. It has not been taken out for the reason that it would have to be twice handled. When the mill and hoisting works are completed, this ore will then be removed and the development work will be facilitated. The great wealth and extent of ore in this wonderful mine is shown in the fact that just now four men are drifting all abreast in ore which requires no sorting.

One of the improvements being added is an electric light plant from which, beside the power used in running the machinery, the mine will be lighted.

Speaking of the report that the owners of the mine had refused an offer of \$3,000,000 for it, Mr. Twomey says he does not suppose they have ever been offered a cent. They have never entertained an actual offer of any kind. They do not wish to sell, and so far as he knows no man with the intention of buying the mine has ever gone into it. It is unlikely, he thinks, that an offer has been made for anything that could not be seen. It is the policy of the management to admit no one. There is nothing to be concealed and nothing to be advertised, but crowds of visitors are annoying and exhaustive of valuable time. Mr. Twomey says that a proposition to purchase the mine would not likely be considered. The receipts from it are so extensive and steady that the property is more valuable in the estimation of an eastern business man who would not likely be attracted from that sort of an investment by an alluring lump sum. The price paid for the Pearce was \$275,000. The owners took that much out of the mine in just three months and ten days, beside paying all the expense of doing it.

Cherry Creek District.

(Special correspondence to Phoenix Republican.)

James Shirley has charge of the Etta mine and mill, and the work he has done has thus far proven satisfactory. The ledge is about five feet, and the ore is free grade and free-milling. It averages about \$18 to the ton.

The Etta is on the Rio Verde slope of the Black hills, which contain the United Verde at Jerome. It is in the Jerome district, southwest of Jerome camp, in Yavapai county, eight miles in an air line. Eight men are employed. The ore is crushed at the old Etta ten-stamp mill, five miles from the mine, on the Rio Verde River.

The Gold Ring mine near the Etta has been leased by Bert Morton and is being worked. The ore is being milled at the old Watson five-stamp mill on the Rio Verde, a mile from the Etta mine.

Below the Etta, a short distance to the southwest is the B. B. mine. Last year, \$20,000 was taken out of this mine. It is the property of Bashford & Burmister, of Prescott, and Mr. Nathorst of Jerome camp. The mine is being developed and its promises are very encouraging.

The Crosscut and the Gulch mines are extensions of the Etta. Both are patented properties, and show good ore bodies. The Watson mill was built to treat the ore from these mines.

Frank Derrick has a group of claims known as the Cornicopia group on which he is doing development work. Indications point to an extensive ore body, and Mr. Derrick is developing the properties to strike this ledge.

The Mocking Bird is owned by Richard Te Kuhn, who was the first man to locate a claim in Cherry Creek district. This mine has the honor of producing the richest ore of any mine in the territory. But like all good things it did not last long. The ore is still rich, however, and the four claims embodied under the wings of the Mocking Bird are valuable ones.

There is the Orissa group on one claim, of which there is a seventy-foot shaft which is being sunk deeper. These are the property Editor Adams and Mr. Gilmour of Jerome camp. The ore is free milling, like the other gold-bearing ores in this district and averages very high. I can think of no one more deserving of wealth than an editor, and Editor Adams has an open countenance, just the kind Fate ought to be glad to smile upon.

J. J. Riley has the Gold Leaf properties which he is developing. A stamp mill has been ordered which, will be put up on Cherry creek.

Nick Galles has leased the Bradshaw group here. The development work is extensive, and there is hope of making a good mine here under Mr. Galles' supervision. The ore body is large and the ore of high grade.

Frank Biffer is a tenacious man. For twenty-five years he has worked ore from his claims here with an arastra. There is hardly any expense to his process, as he uses water power. While he sleeps the water drives his rude ore crusher, and it does not require the attention usually claimed by these relics of the first days of mining. During all these years it has never been idle for any considerable period. It is a slow wealth producer, but it is sure. Mr. Biffer has a fortune of \$25,000, which he has accumulated. His mines are in Cherry Creek district, and the arastra is located on Cherry Creek.

The Rocky Pass group have tunnels, winzes and shafts, making the development about 500 feet. The vein is small but very rich.

A small, one-tank cyanide plant is located on Cherry creek and is treating tailings from the B. B. mine with profit.

Development work is being prosecuted on some property owned by J. G. Allen. A portion of this property was sold to J. J. Riley for a consideration of \$2,500 cash.

B. Baker and J. F. Derrick own some claims near the B. B. which they are developing. Mr. Baker is the inventor of a new process for milling ore which he calls the "Prospector's Friend."

J. F. Pyront has some gold claims near the old Conger property. A seventy-five foot tunnel has been made into the hill, and a ledge of six inches in width was found carrying good values.

The district is not old and there is more work being done here than ever before. The gold is all free and the ore carries some silver. The fact that the district adjoins Jerome gives it a prestige not enjoyed by many.

The first pay day of the Saginaw mines in Pima county occurred Monday, June 14th. The payroll of the employes amounted to over \$700. This did not include a number of outside workmen. The body of rich ore continues to hold out and the outlook for the Saginaw is altogether very encouraging.

CALIFORNIA.

KERN COUNTY.

Randsburg News.

Since the first of March all the business of the towns (that includes Garlock) went to the dogs and more than one-half of the people who were in business pulled up staks and went "inside," the legitimate improvement of the mines then commenced.

At the present writing there are more than four times as many men employed upon paying mines and doing legitimate development work than at any time since the start of the camp. Mining property is being sold, leased and bonded more freely than at any time.

Under the able management of J. C. Quinn, the Val Verde group of mines are doing splendid. The mill of this company is occupied night and day upon good ore from these mines and it is authoritatively reported that this company will declare a dividend for the month of July.

The Rand group of mines are employing thirty men and the well equipped mill of E. T. Garlock is continuously employed crushing ore from the same. The celebrated Kinyon mine and the Wedge mine are milling ore as rich as was reported not long since in the papers.

The impetus in mining is just being felt by the mills at Garlock and are running on very nearly full time.

F. H. Heald something over a year ago located ground for coal about four miles northwest from Garlock and notwithstanding the fact that it has been predicted time and again that such a thing as coal could not be found in this country, yet like gold, coal is where you find it. Mr. Heald has developed this into a well defined vein of coal eighteen inches in thickness. The coal is of a good bituminous quality and is now being used by the blacksmiths and restaurants of Garlock. The sale of this mine to a syndicate for \$15,000 is proof enough that it is sure to be valuable. Contracts are being made with the mills to furnish them with fuel. This will settle the question of cheap fuel for these parts.—*Bakersfield Echo.*

COLORADO.

(From Daily Mining Record.)

SUMMIT COUNTY.

Breckenridge Notes.

The Mountain Pride is being unwatered with a view to resuming operations and will probably be working the regular force next week.

The Golden Edge mill started to running on Tuesday, June 15th. The Wilfley concentrating table, which will handle the tailings as they come from the amalgamating tables, was set up and adjusted last week.

L. G. Davenport and Theo. Knorr, who are working a lease upon a portion of the Germania group, shipped a car of ore last week; the ore contained a good portion of grey copper which runs well in silver.

Recent assays from breast samples of ore from the Bondy lode in Pollock mining district show a value in gold and silver of over \$50 per ton. It is reported that the pay-streak has widened to about two feet.

Two car loads of machinery were unloaded last week for the new bedrock shaft, which is to be sunk on the New England placer by D. J. C. Arnold & Co. Their placer adjoins the Maggie and it is expected to strike an old channel of the Blue River.

The West Side mill has been running on ore from the dump of the Gold Dust. Wm. Robinson and Charles M. Drake have a lease on it and are having the ore concentrated before shipment. The mill is making a good grade of concentrates from the ore under the superintendency of Cal Reed.

A new strike of about fifteen inches of ore has been made on the hill above Lincoln in the Alex Lee by Joseph McKinney who has been grub-staked by Wm. Knorr for some time. The ore was struck in the tunnel, which has been driven for over three hundred feet; it is a galena which carries some silver and about one ounce in gold per ton.

The Kilton Ore Sampling company's plant is being built rapidly; the main building is enclosed and roofed (also the office) and it is probable that it will be ready for business by July 1st. They will have a large territory to draw upon for an ore supply; besides the Breckenridge mines, those of the Robinson, Kokomo, Dillon, Montezuma and Rock Creek districts will contribute their share.

OURAY COUNTY.

A contract has been let to former employees on the upper levels of the Yankee Boy mines to extract ore, till negotiations can be concluded the next sixty to ninety days, squaring up the entangled mass of indebtedness.

Frank Prevo has lately purchased an old property lying west of and ahead of the Gem tunnel which shows a big strong vertical fissure of crystallized lime, which is the same gangue that carries the high grade silver value in the grey copper ores in the Gem tunnel.

Week before last Mose Paquin, who has been running a sixty-foot tunnel for the owners on the claim on Corbett creek, below the falls, known as the Overman claim, struck an eighteen-inch streak of yellow copper in a

lime gangue carrying fifteen per cent. copper and three ounces of gold.

Superintendent Pelham started the Badger mill last Monday, June 14th, on Slide and Gem ores. His former success in concentrating Ouray ores is a strong guarantee of a profitable shipping product.

The lessees on the Jonathan last week came upon a quantity of good looking ore which bids fair to assume the proportions of an important discovery in the near future.

The Gem tunnel on the west side of the river, on the line of the Bachelor dyke, is an old and favorably known property. Its workings consist of hundreds of feet and there are hundreds of tons of ore on the dump and in sight of a character and grade very similar to that in the Wedge mine. Crystallized grey copper asserts itself freely throughout the ore measures, and a 200-ounce grade of silver ore should be easily sorted, leaving a world of mill dirt for twenty to forty ounces value.

Ouray Mining and Exploration company, \$50,000; office, Denver; operate in Ouray county; incorporators, W. B. Williams, S. A. Osborne, E. P. Miller.

LAKE COUNTY.

Dorcas Mining and Milling company; \$1,500,000; office, Cleveland, Ohio; operate in El Paso and Lake counties; incorporators, J. M. Homer, Jr., Henry C. Topping and James Parfet.

Leadville Notes.

The sale of the Yankee Doodle claim, on Carbonate Hill was recorded last week. This mine has a record as a producer of at least half a million dollars.

The Marian shaft of the Small Hopes Company has now been completed, having reached a depth of 1330 feet. This is the deepest shaft in the district, the lowest depth gained at the Little Johnny being 1250 feet. From the bottom level of the Marian three drifts will be run to open up the lower ore chutes that have been discovered by diamond drill prospecting.

Fryer Hill reports several strikes that seem to be an echo of the old days of that section. Stanley & Co., working the McCrea shaft of the Little Chief, recently broke into a body of ore running as high as 6000 ounces silver. This is a new ore chute to the south of the old workings and of great importance, as it opens up entirely new ground.

The Vivian Leasing and Mining Company, on Breece Hill, is now in practical control of the iron shipments from Rock Hill, just south of California gulch. It has leased from the Iron-silver Company such well known properties as the Rock, Dome, Stone and Seventy-Six lodes, and sub-leased these to numerous groups of lessees. One of the most important of these leases is that operated by J. S. Doddridge & Co. They have opened up an iron ore body, 40 feet wide, for a distance of 70 feet. It is dipping away and a force of men is engaged in sinking the shaft to catch the chute again.

ROUTT COUNTY.

Colorado Onyx company, \$250,000; office, Steamboat Springs; Routt county; incorporators, James D. Husted, Abner B. Smith and

James A. Miller of Kansas, James H. Crawford and James F. Hadley of Colorado; organized to mine onyx, marble and stone in Routt county.

EL PASO COUNTY.

The Harrington lease on the Orphan Belle made a shipment of 30 tons last week. F. S. Johnson, the new manager, has taken charge of the property and will increase the force and make a much larger output than has been made the last month.

Moore & Wilson, of the Pike's Peak, made shipments of 40 tons of first-class ore, 24 tons of second class ore and 60 tons of mill dirt the past week. Only a small force of men are employed and a number of sub-leases are let. The property is paying the lessees well and work on a much larger scale is contemplated.

The Skinner lease on the O. K., near the New Zealand on Bull Hill, is a new proposition that has a very favorable showing. At a depth of 60 feet a large vein of talc is found, which runs \$30 to the ton. Considerable ore is on the dump at present and regular shipments can be made.

The Portland mine is putting in an Ingersoll air compressor of 12 machine power, and two 80-horse power boilers. Work is to be resumed in the main shaft.

The strike of a new ore chute on the Dante, reported last week, has been opened out and shows a body of rich ore nearly 7 feet in width across the vein. A shipment of about 40 tons is ready, and will be sent in some time during the latter part of this week. From assays made, the ore is expected to be worth about \$80 to the ton.

GILPIN COUNTY.

Mr. Nelson, of the Evergreen in Evergreen gulch, is building a road and making preparations for a shipment of about 50 tons ore to the Rocky Mountain concentrator at Black Hawk.

Rose & White, who are sinking their Mystery claim near Twelve Mile, last week had an assay made of a 10-pound piece of ore taken from the bottom of the shaft, which showed values of 8 ounces gold and 56 ounces silver per ton. Their shaft is only thirty feet deep and the above is a very satisfactory showing.

The 7-90 Mining Company are steadily operating their St. Anthony property, adjoining the Spur Daisy on Negro Hill. Preparations are being made to sink another lift of 100 feet, but at present the east and west 100-foot levels are being extended, and stoping is being carried on from the second to the first level. Shipments are being made right along with a working force of five men, there being a nice body of ore in the west level. The ore at present shipped carries values of from \$30 to \$60 per ton.

Sinking is progressing favorably in the Charcoal Charlie shaft, which is now down 70 feet on a contract calling for 100 feet of sinking, which when completed will make the shaft a total depth of 150 feet. Some good looking yellow copper ore is being taken out while sinking, and operators feel well pleased with the present showing.

CLEAR CREEK COUNTY.

Georgetown Notes.

Alspaugh & Co., lessees on the Colorado Central mine, owned by the Aliunde Consolidated Mining Company, who are working on a block of ground between the Ocean Wave tunnel and 750-foot level, met with a surprise the other day, when the vein of ore widened out to three feet. This was not altogether unexpected, except the magnitude of the vein.

A change in the ownership of the Headlight mine, near Empire, is looked for soon. A vein of solid ore, ranging from four to six inches in thickness, has recently been disclosed in the stope, the value of which, according to a late mill run, is four and one-half ounces gold to the ton.

William Jacobs has taken hold of the Eureka mine, in Ohio gulch, under lease.

Professor Old has been given possession of the so called Dunderburg workings within the Frostburg patent, the Dunderburg Company having failed to file a motion for an appeal with the court of appeals at St. Louis. The ground in contest is from 200 to 400 feet in length, and has six workings. A large amount of ore has been extracted from the ground, and a suit is now pending for \$300,000 damages against the Dunderburg Company. Work was commenced last week by Robins & Co., to drive the west level of the Sherman mountain tunnel to intersect with the D level of the Dunderburg workings, which was recently awarded to Mr. Old. The connection has been made and the D level is being cleaned out.

M. F. Petersen has a contract to extend a tunnel in the Sunnyside mine to open it up from the Clear Creek side.

Chas. Bressler is getting out timbers for use in the Malvern Hill mine.

Bab Piazzoni continues work in the Swiss mine with a small force.

During the past winter, the Savercool brothers are supposed to have done fairly well at Dutch Hill.

E. E. Ross has four men employed in operating a hydraulic mine on the east side of the North Fork opposite the Cameron mine. Satisfactory results are being reaped.

Cusick & Co. will supply their river mine with a donkey engine and a pump, with which they expect to do effective work.

Messrs. Austin and Cadle who have the Pliocene drift mine leased from Messrs. Bransford, Austin and Higbie, are taking out good pay.

BOULDER COUNTY.

The Modoc mill was started up the fore part of June with 10 stamps employed. The balance of the stamps will be set in motion within a short time.

The Montgomery shaft is now being sunk by double shifts by contractor Stente. The mill is running spasmodically on clean up lots of mill dirt, but within a few days the stamps will be put in motion for a period of steady pounding.

Tom Williams of Quigleyville has taken an option and 5 year lease on the old Cold Spring mine at Gold Hill and proposes to operate the mine on an extensive scale this summer. The production of the mine up to date is variously estimated between \$200,000 and \$500,000.

Prof. W. F. Mead on Monday of last week consummated the sale of the Great Western Extension lode, a promising looking property lying north of the White Pine. The purchasing parties are Philadelphia people and the consideration was \$2000 cash. The mine is opened up to a depth of 20 feet and in the bottom of the shaft is a vein 8 feet in width, most of which bears mineralized matter. It is in the intention of the new owners to immediately improve their property by sinking the shaft another 100 feet.

LA PLATA COUNTY.

A carload of ore is sacked at the Jenny Lind waiting on the packers who are so crowded with work that they are getting behind with their orders.

A big strike was made last week by R. C. Reese in the Little Jane mine. He ran a short crosscut to the vein some distance below the shaft and has an 8-inch pay streak of tellurium ore that runs over \$250 per ton without sorting.

MEXICO.

The powerful smelting firm known throughout the republics purely as the Guggenheims have just assumed control of another copper mine. The property is situated but a short distance inland from the Dolores siding, about eight kilometres south of Jimenez, in the state of Chihuahua, on the Central's main line. It was formerly owned by Mr. Gomez Rueda, a commission merchant of Jimenez, who disposed of it for the sum of \$150,000 cash. It is an old mine but has been profitably worked recently, the extractions showing the reddish, malleable ore to be of the finest quality. The new owners will operate the property on a much larger scale in the future, inaugurating improvements that will necessitate a large outlay of capital. The ores will be shipped to Monterrey and Aguas Calientes for smelting purposes.—*The Trader*.

Frank S. Kirkland has just denounced 25,000 acres of mineral lands in the Iturbide district, in the state of Jalisco. The property is called El Concho, and the taxes amount to \$16,000 annually. The ores carry both gold and silver.

The government has published in the *Diario Oficial* a statement showing the exports of minerals from Mexico, for the first half of the fiscal year 1896-97. According to this statement, the exports of the precious metals were \$31,787,926, as against \$31,556,414 for the same period in 1895-96, an increase of \$231,512.

The mining boom in the estate of Chihuahua is increasing, and large amounts of American and English capital is being invested there.

The Velardena company pays the small sum of \$40,000 monthly to the Mexican International railroad for freight.

The number of mines in the Guanajuato district is more than twice as great as when the present mining law went into effect, according to the receipts from taxes.

Contrary to the common belief, the decline of the price of silver has not closed the mines at Zacatecas. The effect has been rather to

increase the output. Old mines are being worked with vigor and new ones are opening.

The new Ario Copper and Exploration company has just been organized in London with a capital of \$400,000. It proposes to carry on a general Mexican mining business, but particularly in the Ario and Morelia districts of Michoacan.

Mr. F. W. Nash, treasurer of the Omaha and Grant Smelting company, was in Mexico in May. This company, in addition to its smelting interests in the United States, conducts the smelter at Villaldama, under the name of the Villaldama Mining and Smelting company. It has a large number of mines and has over 1,200 men on its Mexican pay roll. The smelter at Villaldama is smelting 200 tons of ore a day.

NEVADA.

The Golden Eagle mine, in Central District, Humboldt county, has a shaft down on good ore, and has shipped a carload of first class ore the first of the week.

Sinking has been resumed on the Young America East, at Tuscarora, under the direction of Superintendent Parsons. Work had been suspended pending the arrival of necessary timbers and lumber.

Mountain City Mines.

About seventy-five miles north of Tuscarora, in the great mineral belt which is attracting the attention of mining men in all parts of the globe, is situated a town, which in the palmy days of Nevada, was one of the greatest wealth producers of the west, but the demonetization crime of 1873 closed the mines and hushed the rumble of the mills. Since then, no work to speak of, except a small amount of prospecting, has been done until this spring, when the news of the rich discoveries in this great region brought mining men and prospectors from all directions, and now Mountain City stands well up on the list of prospective leading mining camps.

This district was organized in March, 1869, by A. J. Cope. During the following summer, a general merchandise store was opened by Leander Fisk and Frank Fellows, and one by Mr. Openheimer, of Elko. In the spring of '70 a ten-stamp mill, propelled by water power, was erected by a Mr. Vance for custom ore, and another of the same capacity was built by Colonel Drew. The first contract let to the mill being for 1000 tons of ore. Nearly all the work done on the camp had been on the surface not to exceed ten feet deep, and over \$34,000 was taken out of the float. The experience on all the old mines was that the ore was very rich, and a gold ledge found on nearly all the properties, but on sinking they seemed to give out all of a sudden. Prospectors who have recently gone in held to the theory that this was caused by slides, or faults, and have proven their theory correct.

Messrs. Ish, Baud and Hill, of Cripple Creek, Colorado, have taken hold of the Mammoth, a mine from which over \$100,000 was taken out from the surface to a depth of ten feet, and have sunk seventy feet and drifted forty feet on the ledge in good ore. They expected to strike the chute of ore in another twenty feet, but were compelled to suspend operations on account of the great body of water which they were working against, and

cannot do anything further until pumping machinery arrives.

The most noted mine of the camp was the Argenta, which produced over a quarter of a million dollars. Other mines upon which considerable work was performed in early days were: the Mammoth, Congress, Excelsior, Mountain City, and Robert Emmett.

A concentrator, built by G. F. Talbot and John Ainley, is still standing, and with no great amount of expenditure could be put in working order again.

Joe Tippett has eight or ten claims that carry considerable gold, and upon which operations will be vigorously prosecuted during the summer.

About ten or fifteen men from Cripple Creek are already at work in the mountains, and as many more are on the road, en route for Elko county's new El Dorado, and two or three hundred California miners are expected to arrive during the next few months.

From W. W. Chisholm it is learned that another shipment of ore has been made from the Kinsey mine, in White Pine county, Nevada. Mr. I. N. Duuvan has returned to Salt Lake City from the mine, which from all accounts is looking well with good ore reserves in sight.

James W. Linnell, the former superintendent of the Dexter mine, at Tuscarora, Nev., who was under arrest for the alleged theft of amalgam from the company, was in Salt Lake City last week, and it was learned from the officers of the company that all differences heretofore existing between Mr. Linnell and the company had been amicably adjusted, the difficulty being satisfactorily settled to all parties concerned.

In speaking of the loss of bullion at the mill during the past three months, the company stated that it had no evidence compromising Mr. Linnell with its disappearance.

In referring to the circumstances concurrent with his arrest, Mr. Linnell stated that, feeling at the time that he had been unjustly deprived of his rights and liberties, he became angry and caused the arrest of Messrs. Lee and Ellis, although he was then fully satisfied that they were in no way implicated in the taking of the 30 pounds of amalgam, which so mysteriously disappeared from a closet in his residence.

It was learned the other day that on the 10th ult. hoist No. 4 was destroyed by fire at the Dexter mine, but this will not interfere with the operation of the mill, as there is plenty ore on the dump to keep the plant in constant operation until the new shaft will be in running order, which will be some time in near future.

The reports from the mine are very encouraging.

Two separate parties are chloriding in the Meadow Valley shaft No. 3, and overhauling the steam hoist at Pioche, Lincoln county. Screenings for leaching purposes are being taken out, while the chances of striking a chute of pay ore are good, for that vein was a bonanza for years under the management of the Meadow Valley Company to chloriders and tributaries, and recent caves in the ground show up promising leads in several places.

The Freudenthal boys having terminated their lease on the Lyndon mine at Comet, in Lincoln county, are preparing a shipment of ore which will consist of several carloads, and which they expect to get off about the 1st of July. Only ore running upwards of 100

ounces of silver to the ton is shipped. Less value than this leaves too small a margin of profit, and the result is that the mine boasts a dump of several thousand tons of ore which in almost any other section would be converted into bullion.

NEW MEXICO

Hillaboro Mines and Mills.

Output of Hillaboro gold mines for the week ending Thursday, June 26th, 1897, as reported for *The Advocate*:

	Tons
Wicks	42
Leitch	65
Richmond	45
Happy Jack	10
Snake Group	45
Opportunity	10
Sherman	15
Prosper	15
Eighty-five	10
Rex (silver-lead)	20
Total	225

Total output since Jan. 1, 1897, — 3,870.

UTAH

Patsey Marley, an old time prospector, reports the discovery of a rich deposit of copper ore within two hours walk of Salt Lake.

The Gemini at Eureka began loading ore June 19th for the first time this year and it is expected that from now on the mine will be a regular shipper.

Superintendent Getchell, of the Beaver Lake Copper company, writes from Beaver Lake district that the mine of the company is improving as work progresses. The new working shaft is now down a depth of 16 feet, the whole bottom being in a body of shipping ore, and the indications that the mineral zone will grow in size as depth is attained. It is the intention of the company to make a car-load shipment of ore this week. The directors and stockholders are feeling highly elated over the outlook for the property.

A few days ago rich assays were received from a piece of white iron sent in from a new discovery in Iron county, supposed to be in the vicinity State Line. Another test was made June 19th by Assayer Tremayne, and the result showed values 6.2 per cent iron, 21 ounces silver and \$6.080 in gold to the ton. The prospector who made the find was sent out by Professor C. P. Converse, who will investigate into the extent and value of the discovery.

W. J. Wolstenholme of the New State, who returned Friday night, June 18th, from a visit to this property, which is located at the mouth of Little Cottonwood canyon, says that the men are now sinking a winze from the tunnel on a seven-inch pay streak, and that as depth is attained this rich body of ore is gradually increasing in size. Mr. Wolstenholme took out some ore sacks with him, which are being filled with rocks that assays \$120 in gold to the ton. It is the intention of the company to resume work at an early date in the extension of the lower tunnel for the purpose of cutting the ledge at a greater depth.

It is reported that there is a very encouraging showing in the Levant mine, near the Highland Boy near Carr Fork gulch, Bingham. The tunnel in this property is in a distance of

220 feet, in the face of which there is a two-foot body of ore that carries average values of 14 per cent lead, 32 ounces silver and \$1.60 in gold to the ton, while through this chute of ore there are small seams and stringers that run very high in gold, the result of 18 average assays showing \$290 in this metal and 100 ounces in silver to the ton, besides 40 per cent lead. On another portion of the property there is a good showing of copper ore and it is the intention of the owners to do some effective development work on the claim during the present summer.

Shipments from the Tintic Mining District for the week are as follows:

	Tons
Bullion-Beck mine	20
Centennial-Eureka	3
Eureka Hill Mill, concentrates	12
Uncle Sam	6
Mammoth Mill, concentrates	7
Mammoth	6
Carisa	4
Swansea	4
South Swansea	3
North Star	3
Joe Bowers No. 2	1
Lucerne	1
Domingo	1
Total	71

GENERAL NEWS

The Los Angeles Mining and Stock Exchange.

On account of the limited amount of space we cannot give the daily call, but the following is a synopsis of the proceedings of the last two weeks:

Monday, June 14th.—Market opened up bright and active.

Cariboo was steady at 49½c bid; offered at 50c, with sales of 200 or 300. This property is being thoroughly prospected and very flattering reports are received.

Tuesday, June 15th.—The surprise of the early part of the week occurred in Tuesday's market. Wedge opened up on Tuesday morning at 90c, and several hundred shares were sold at this price. The price then rapidly advanced to 91c, and from there jumped to 94c without an interruption. Before the close the price had advanced to 99c under sales of several thousand shares.

The heavy trading in Wedge detracted somewhat from the interest in Rand Mountain, and this stock, although holding its own at 1½c, was not very active.

Wednesday, June 16th.—Cariboo is still steady at 49½c bid; offered at 50c. Sales of 100 or 200 were made at that figure. Wedge advancing, at \$1.00; offered at \$1.01, with sales of 200 or 300 at \$1.00. Laguna offered at 9½c. Rand Mountain holding its own at 1½c; offered at 1½c. Sales of 2000 to 3000 were made at the above price. Pacific Consolidated 1c bid; seller 5 days. Brown Dake 11c bid, offered at 13c. Iron Mt. offered at 1½c. Little Butte, 13c bid; sales of 200 at 12½c. Anaconda, 50c bid; offered at 53c. Argentum Junata, 30½c bid; offered at 31c. Mollie Gibson, 31½c bid; offered at 31c. Portland (Dividends on) 60½c bid; offered at 65c.

Thursday, June 17th.—Rand Mt. steady at 1½c, with sales of 5000 to 10,000. Pacific Consolidated active, sales of 1000 to 20,000 at 1c. Wedge not overly active; 100 at \$1.00 and 100 at \$1.01. Cariboo steady at 50c.

Quite a little interest is taken in Laguna stock; 7½c sales of 1000 or 5000.

Friday, June 18th.—Rand Mt. advancing, 1¼c bid; offered 1¼c, sales of 5000 or 9000 at 1¼c. Pacific Consolidated steady at 1c, with good sales. Wedge holding its own at \$1.01, sales of 500 at \$1.00½. Cariboo 100 at 50c. Laguna 1000 at 7½c.

Saturday, June 19th.—Cariboo 49¾c bid; offered at 50c, sales 200 at 49¾c. Considerable interest taken in the Wedge; \$1.01½ bid; offered at \$1.02, with sales of 1000 at \$1.01. Laguna offered 7¾c. Sales of 1000 or 5000 at 1½c were made in Rand Mt. stock. No change in Pacific Consolidated at 1c and sales of from 2000 to 4000 at 1c. Iron Mt. offered at 1¾c; 2000 at 1¾c. Little Butte, 1¾c bid, with sales of 100 at 1½c. Portland, 60c bid. Total sales for the week, 46,000 shares.

The market throughout this week has been one of continual surprises, showing the demand for good mining stocks based on well selected properties.

Monday, June 21st.—Opened very quiet on the daily call board of the Exchange, with the lightest trading and fewest orders on the floor of any day since the opening, several of the leading brokers having been in Randsburg. Sales on the Pacific Consolidated were good; 20,000 at 1c was one of the sales, and they ranged from 1000 to 20,000. Wedge rising; 200 at \$1.04½. Laguna stock declining a little; 5000 at 7½c. Cariboo holds strong; 300 at 49¾c. Rand Mt. sales increasing; 1000 or 2000 at 1½c. Val Verde, 200 at 8c.

Tuesday, June 22d.—Pacific Consolidated very active, 1¼c bid; sales of 2000 or 5000 at 1½c were numerous. Laguna steady; 2000 at 7½c. Considerable interest was shown in lee Rand Mt.; 23,000 shares were sold during the day at figures ranging from 1¼c to 1½c. Cariboo, 100 at 49¾c. Wedge, 100 at \$1.04½.

Wednesday, June 23d.—Cariboo, 49¾c bid; offered at 50c; 200 at 50c sold. Wedge steady; \$1.03½ bid; offered at \$1.04½, with sales 200 or 700 at \$1.03½. Laguna, 7¼c bid; offered at 7½c. No change in Rand Mt.; 1¾c bid; offered at 2c; sales 3000 or 5000 at 1¾c. Pacific Consolidated active; 1½c bid; offered at 1½c, with sales of 5000 or 10,000 at 1½c. Brown Duke, 5c bid; offered at 12c.

The following are the unlisted stocks that are active:

Iron Mt. (Cripple Creek) 1½c bid; offered at 1¾c; sales 2000 at 1¾c. Little Butte (Randsburg) 10c bid; offered at 24c. Red Cloud (Cripple Creek) 1½c bid; offered at 1½c. Anaconda (Cripple Creek) 50c bid; offered at 51c. A. J. (Aspen) 36½c bid; offered at 37c; sold 600 at 36c. Mollie Gibson (Aspen) 30c bid; offered at 36c, and sold 100 at 35c. Portland (Cripple Creek) 59c bid; offered at 60c; sales of 150 at 59½c were made.

Thursday, June 24th.—Cariboo slow 49¾c bid; offered at 50c, with sales of 100 at 50c. Wedge strong; sale of 4000 at \$1.03¾. Laguna steady; 2000 at 7½c. Rand Mt., 24,000 at 1¾c. Pacific Consolidated, 1½c; 19,000 shares sold at 1½c. Unlisted stocks were offered for sale: Iron Mt., 1½c bid; offered at 1¾c. Little Butte, 11c bid; offered at 25c. Portland, 59c bid; offered at 60c. A block of 1,850 shares of the stock of the Volcanic Copper Mining and Smelting company was offered at 35c, the balance to be held. This is an unknown stock and no bids were made.

Friday, June 25th.—Cariboo slow at 49¾c;

offered at 50c. Wedge steady at \$1.03¾c; offered at \$1.05; sales, 100 at \$1.03½ and 100 at \$1.04. Laguna seems to stay at 7½c; offered at 7½c, with sales of 1000 each at 7½c and 7¾c. Rand Mt., 7¾c; offered at 2c, and 39,000 shares sold at 2c. Pacific Consolidated, 1¾c; offered 1¼c, and 6000 at 1¾c sold. Brown Duke, bid 10c; offered at 12½c. Unlisted active: Iron Mt., 1¾c bid; offered at 1¾c. Portland, 59¾c bid; offered at 59¾c; sales, 1000 at 59½c. Little Butte slow at 10c bid, and offered at 24c.

Saturday, June 26th.—Cariboo steady at 49¾c bid; offered 50c; sold 100 at 49¾c. Wedge very active; over 1200 shares sold at figures ranging from \$1.02 to \$1.03½; bid \$1.03½; offered at \$1.04. Laguna steady at 7¾c; sales, 1000 at 7¾c. Rand Mt. active; 1½c bid; offered at 2c, with sales of 1000 at 1¾c. Pacific Consolidated holding its own at 1¾c; seven sales of 1000 shares each at 1¾c were made. Brown Duke, 10c bid; offered at 12½c. Unlisted stock active: Iron Mt. offered at 1¾c. Little Butte, bid 23c; sold 1000 at 20c. Portland, 59¾c bid; offered 61c. Volcanic, 100 at 30c.

Gold and Silver Production.

The product of gold and silver in the several States and Territories of the United States for the calendar year 1896 is estimated by the Director of the Mint to have been as follows:

State or Territory.	Gold Value.	Silver Coining Value.
Alabama.....	\$ 5,700	\$
Alaska	2,055,700	187,763
Arizona.....	2,004,200	2,473,373
California.....	15,235,900	29,185,293
Colorado.....	14,911,000	29,185,293
Georgia.....	151,000	776
Idaho.....	2,155,300	6,658,457
Iowa.....	1,000
Maryland.....	300
Michigan.....	37,200	76,283
Minnesota.....	800
Montana.....	4,234,700	21,640,404
Nevada.....	2,468,300	1,355,895
New Mexico....	475,800	889,277
North Carolina.	44,300	646
Oregon.....	1,451,000	79,998
South Carolina.	63,300	338
South Dakota...	4,969,800	286,727
Tennessee.....	300
Texas.....	8,000	69,305
Utah.....	1,899,800	11,413,463
Vermont.....	1,000
Virginia.....	3,500
Washington....	405,700	355,426
Wyoming.....	14,300	129
Total.....	\$53,088,000	\$76,069,236

In this, as is the rule, the silver is estimated at its coinage value, when it has no coinage value. It has had only a commercial value since the repeal of silver coinage laws, and the commercial value is less than \$38,000,000, instead of \$76,069,236, as stated by the Mint.

THE MINING OUTLOOK IN SPANISH AMERICA.

New Fields, New Development and More Interest Taken.

California, although having been considerably worked the past fifty years, is yet a good mining country, and, practically speaking, hardly commenced on from a scientific and systematic standpoint; but, owing to the large amount of capital now required to thoroughly develop the mines and make them pay with expensive machinery plants, the ordinary gold hunter is unable to operate and

work the mines as should be done. Only the capitalist can handle and put them on a paying basis.

The locating and holding of mineral lands in California as agricultural lands, and the anti-debris hydraulic law, has had the effect to cause the hardy gold-placer workers to do something else for a living, or seek new fields for mining where a great amount of capital is not required, and similar conditions exist as was found in the early period of mining in California. Hence, the ever restless and ambitious prospectors are always on the alert for any new openings and new *El Dorados* that naturally offer inducements to correspond with his strength, experience and means to develop, build up and replenish his depleted condition. History repeats itself, and what has been done can be done again, if not in California, then in some other new fields of operation. Alaska is a good and new country; but shortness of its season for work makes that country a hibernating field nine months of the year, where miners have hard work to keep the icy terrors from freezing his soul, and, during which time, the only light which looks in upon his solitary cabin is that which comes from aurora borealis.

California is blessed with a genial and balmy climate that is favorable for out-door work. All countries are not so blessed; but, in some respects, otherwise may be better off. Most all countries are not overdone, overrun, and competition is not so great. California, with its metropolitan cities, modern improvements, railroads, etc., is not exactly a new country. More or less hardships have to be encountered in all new countries. Hence it is that Spanish America to day is practically the only new field remaining for the hardy, poor, ambitious miner to make a beginning—all things considered. There is a broad field and broad avenues for the accumulation of wealth. The preservation of health should be uppermost in his mind, and, in order to obtain and retain that, the high altitudes bordering on the Pacific Coast are more favorable and correspond with that in which he has been raised.

From the Mexican line between the United States on the Pacific Coast to the Republic of Ecuador is one vast mineral deposit of gold, silver, platinum, iron, coal, etc. No agricultural land locators of mineral lands, and no anti-debris law to bother the miner. The necessary factors to mine with—water and timber, are on the same land in abundance. The auriferous sands are easily worked, and it becomes the paradise of the hydraulic washer with handsome profits. This country is yet in a crude state, and very little, if any, developing has been done in a way to be called a satisfactory test, only by primitive methods. It is more of a silver than gold country until you reach the center of Central America. From this point to beyond Ecuador, across the line into Peru, South America, the gold deposits are more abundant, then silver is again king—which is destined to be the ruling money of the world. In proof of this assertion, look at the wonderful prosperity existing today in Mexico on a silver standard. In these tropical mining countries, although somewhat tropical on the low lands, yet the mountains offer, and there does exist equally as good a climate as found here in Los Angeles. It is no place for society people or too delicate men. It wants men of determination and staying qualities.

Not long since, several young and experienced men, of good standing and means, left

Los Angeles to engage in placer mining in one of the low valleys of the Republic of Columbia, bordering on the Atlantic coast. They encountered hardships, but found some rich gold deposits that were inaccessible, also found, of course, plenty of fever. As a natural consequence, they are all back home again. Now, if they had gone down on the Pacific coast, instead of the Atlantic, they would have found a better climate and less fevers and just as much gold. It makes all the difference in the world which coast you are on in tropical Spanish America. The day is not far distant when this new *El dorado* will lead in the output of precious metals of the world.

G. E. PLACE.

A nugget of pure gold worth over \$5000 was taken from the Ybarra mines, 250 miles south of San Diego on the Peninsula of Lower California.

The offices of the *Mining and Scientific Press* have been removed from 220 to 330 Market St., San Francisco, Cal., the finest business location in that city.

PERSONAL NEWS ITEMS

The general manager of the Parke & Lacy company of San Francisco, J. C. Harron, will return home from Australia in a few days.

George Simon, the mining expert, famous all over the coast as "Diamond George," who located the Desert Queen mine near Banning, Cal., that recently sold for \$240,000, has been on a tour of inspection in Yuma county, Arizona.

D. R. Oliver, the well known mining man of Stockton, was in Sonora, Cal., the early part of last week.

W. S. Stratton, the Cripple Creek mine owner and owner of the celebrated Independence mine, was in San Francisco, Cal., June 17th.

J. C. Rankin has purchased Dan Thores' Standard mine at Prescott, Arizona, instead of the Good-enough as first reported. Purchase price was \$50,000.

J. M. Waugaman of the Greenhorn Mountains, was in Bakersfield, Cal., June 24th, looking after the machinery for his stamp mill which arrived last week.

Ross B. Brown, the mining engineer of note, who has been making his headquarters in Spokane, Washington, has left for London, England.

Isaac T. Stoddard, who has been on a trip east, has returned to Prescott, Ariz.

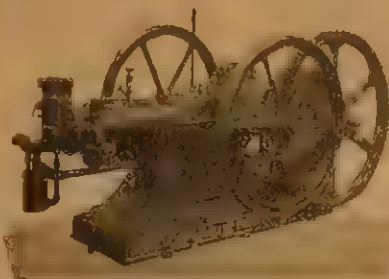
Henry Bratnoher, the mining man of San Francisco, Cal., has gone to Alaska to look into the mining industry of that territory.

Leo Marix, who is interested in some good mining properties in White Rock, near Tascara, Nevada, left for Salt Lake, Utah, the middle of last month.

James A. Abbott, who has been on a trip through the east for the last six months, has returned to Yreka, Cal.

J. A. Maxson, a prominent mining man of Denver, Colo., has been in Bisbee, Arizona, and seems well pleased with that section of the country.

Jacob Schoenfeld, who has been spending the last week at the Mountain Lily mine, at Sonora, Toulumne county, left for San Francisco, June 25th.



Hercules Gas, Gasoline & Distillate Engines

Hoisting Engines 2 to 500 H.P. Stationery Engines 1 to 200 H.P. Marine Engines 2 to 300 H.P.

Our newly designed and perfected DISTILLATE VAPORIZER insures a saving of 50 per cent. on cost of running. Just 1/4 your expense saved by using a HERCULES in place of any other. We make no exceptions.

Nearly 3000 Hercules hoisting, Stationery and Marine Engines in Actual Use. High Grade.

We claim full power, automatic and positive adjustment regulating speed and consumption of fuel in proportion to work being performed. No spring electrodes to burn out. All springs are outside. Points of ignition, speed and amount of fuel can be changed while engine is in operation.

We make a Specialty of Mining Trade. Address **Hercules Gas Engine Works**

Established 1880

217 Bay Street, SAN FRANCISCO, CAL.

WEBER Gasoline Engine For use in any place or for any purpose requiring power. Only a few minutes' attention required each day. Guaranteed cost of operation is One cent per horse power per hour. The simplest most economical and heat power. Address **WEBER GAS AND GASOLINE ENGINE CO.**, 434 Southwest Boulevard, Kansas City, Mo.



MISSOURI DREDGE CO.,

KANSAS CITY, MO.

Placer Mining Dredges a Specialty

Tutthill Water Wheel

The Best Jet Impulse Wheel in the Market, BARRING NONE.

Wheels, Buckets and Nozzles designed to suit Special requirements, when Head and Conditions are Given. Theoretically as well as practically Perfect. Highest Efficiency Guaranteed. Contracts taken for any size plant



We have a Sensitive, Simple and Durable Governor, entirely new and novel, that will positively regulate speed of wheel. Specially adapted for electric railway and Lighting Plants.

OAKLAND IRON WORKS, BUILDERS,

Write for Catalogue

108 First Street, San Francisco

Telephone 1007 Main

Ores! Ores! Ores!!

Gold, Silver and Lead Ores and Concentrates

Purchased at Reduced Rates for Treatment.

Selby Smelting and Lead Co.

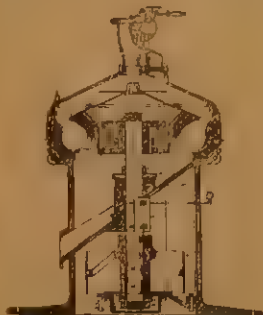
416 MONTGOMERY ST., San Francisco

Consign Shipments to Vallejo Junction, Cal.

MORRIS BALL PULVERIZER



IT POSSESSES GREATER CAPACITY THAN ANY MACHINE OF EQUAL WEIGHT. IT PULVERIZES HARD OR SOFT ORE EQUALLY WELL. IT MAKES NO DUST IN DRY PULVERIZING. IT REDUCES EITHER WET OR DRY EQUALLY WELL AND PULVERIZES TO ANY DEGREE OF FINENESS.



MORRIS BALL PULVERIZER



MORRIS BALL PULVERIZER

For further information Catalogues and Testimonials apply to

D. M. DOUB, General Agt.,

137 First St. San Francisco.

Edward Dunn, a Yavapai county, Arizona, mining man who has been traveling in foreign lands, returned to Prescott, Arizona, Monday, June 14th, after an absence of two years.

H. B. Gleason discoverer of the famous Gleason mines, near Yuma in the S. H. mountains, was in Phoenix, Arizona, June 18th. He reports the mines improving with development work.

Capt. W. A. Nevills of the Rawhide mine in Toulumne county, was a visitor at Fresno, Cal., last week.

Alderman S. T. Thompson, who has been on an extensive trip to the Cascade range in the state of Washington, has returned to his home in Park City, Utah.

W. B. Daniels of Hillsboro, N. M., has recently gone on a prospecting trip over the range from that place.

J. W. Rogers of Randsburg, Cal., manager of the Wedge mine, spent a few days in Los Angeles last week.

J. S. Schlessinger of Denver, Colorado, was in Kingman, Ariz., June 17th. He had just made an examination of some gold claims at Cerbat.

W. O. Secor, the civil engineer who has been in Randsburg, Cal., for some time, returned to Albuquerque, N. M., last week.

Chas. D. Lane, one of the owners of the Utien mine at Angels, Cal., went to London, England, the fore part of June.

C. W. Prage, a well known mining man of San Francisco, is visiting in Toulumne county, Cal.

John W. Mackey will visit the Allison Ranch mine at Grass Valley, Cal., in the near future.

Henry Woods of Bland, N. M., was a visitor at Santa Fe last week.

James T. Carmody is in Prescott, Ariz. from Cherry Creek district, and reports mining very active in that section.

Thomas Parker of Turquoise fame is in St. Louis, Mo., on an important mining deal.

J. W. Fleming, territorial mine inspector of New Mexico, was in Raton last week.

W. K. Fletcher of the Gem group of claims at Randsburg, Kern county, Cal., came down to the city June 25th on a visit.

S. P. Mahon, manager of the Albermarle company of Blake, N. M., has been in Santa Fe, for a few days.

J. D. Moulton of Escondido, Cal., has gone to the Chucawalla mining district in the eastern part of San Diego county.

W. D. Howard, secretary and treasurer of the Bland Mining and Milling company, returned from a trip to Albuquerque, N. M., last week.

Col. A. C. Head of San Francisco, Cal., has just returned from a trip to the Fort Steele country, British Columbia.

W. H. Woodbridge of Stockton, was in Sonora, Cal. the other day.

Frank Bruce of the Crowned Point mine of Bland, N. M., went to Albuquerque last week.

Chas. Bishop of Hillsboro, N. M., has gone to Grafton to do assessment work on a mining claim in that district.

Dr. C. T. Pepper, E. L. Allen and J. A. Kapus, mining brokers of this city, spent a few days at Randsburg, Cal., last week, investigating several properties in that section.

Capt. Ed. Terrell of Raton, N. M., returned home Monday, June 21st, from a successful prospecting trip to Oklahoma.

Benj. Johnson one of the owners of the Crowned Point mine at Bland, N. M., was at the mine the fore part of this week, having been at Albuquerque.

John Thompson, who for many years has been master mechanic for the Anchor Mining Co. of Park City, Utah, has accepted a position with the De Lamar Mining Co. of De Lamar, Nevada.

Maurice Coates, a popular old-time miner of Mogollon, N. M., returned from Bisbee, Ariz., last week.

Thos. Lowthian, the well known Denver mining man, was a visitor at Santa Fe, N. M., week before last. Mr. Lowthian is interested in some mines in the Cochiti district of New Mexico.

Chas. M. Rolker, a mining engineer known in every mineral district in the world, has been in Denver, Col., the past month, making out his report on some properties that he has recently examined for eastern capitalist.

Lacy Manufacturing Co.

Manufacturers of

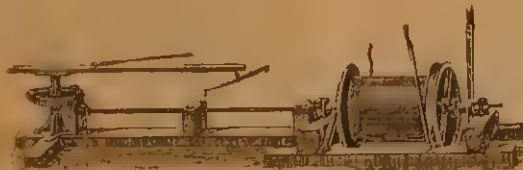
Steel Water Pipe, Well Casing, Oil Tanks and General Sheet Iron Work, Irrigation Supplies, Steel Water Pipe for Hydraulic Purposes.

4 BAKER BLOCK.

LOS ANGELES, CAL.

KROGH MANUFACTURING CO.

Successors to the San Francisco Tool Co.'s Mfg. Dept., builders of **Engines and Centrifugal Pumps** for Mining and Water Works. These pumps can be operated by horse power, water power steam, gasoline or electric motors.



Horse Powers!

Triple-Acting Pumps, Deep Well Pumps, Cornish and Jack Head Pumps for Deep Mining, Horse Power Mining Hoists, Stamp Mills, Ore Crushers, Ore Feeders, Ore Buckets, Ore Cars, Water Gate Valves up to 40 inches diameter, and Link Chain Elevators, Pipe and Pipe Fittings at lowest prices. Hydraulic Presses. We

also manufacture Cyanide Tanks and Centrifugal Sand Pumps for filling and discharging them. The Pumps work the tailings to perfection and are made to handle small or large quantities.

OFFICE AND WORKS

51 Beale St., and 9 to 17 Stevenson St. San Francisco, Cal.

DR. F. W. DRAKE, E.M.

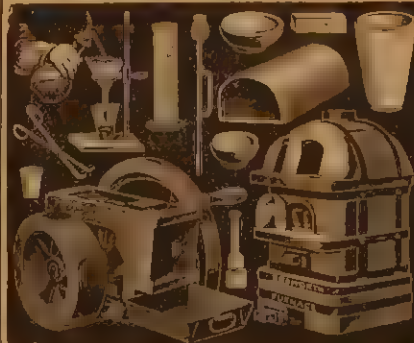
WILL EXAMINE AND

Report on Mines,

Furnish Plans and Estimates.

P. O. Box 380 SONORA, CAL.

— | IT PAYS | —
— | TO ADVERTISE | —
— | IN THE JOURNAL | —



FACTORY:

3101-3141 Blake St., 1742-1746 Champa St., Denver, Col.

THE Denver Fire Clay Co

Assayers' and Chemists' Supplies

MANUFACTURERS OF

Crucibles, Scoriafiers & Muffles

And all other kinds of

Fire Clay Material.

SPECIALTIES—Strictly c. p. Acids
Test Lead, Bone Ash, Cyanide
Potash, Argol, Borax, Borax Glass
Iron Sulphides, Litharge, Soda,
Mining Fluxes, etc.

Sole Agents for the
Alinsworth Balances

OFFICE:

VANDUZEN STEAM PUMP
THE BEST IN THE WORLD.
Pumps Any Kind of Liquid.
Always in Order, never Drips nor
freezes. Every Pump Guaranteed.
10 SIZES.
200 to 12000 Gallons per Hour.
Cost \$7 to \$75 each. Address
Jan. Linforth, 87 Market St.,
SAN FRANCISCO, CAL.

B. T. LLOYD

GOLD MINES,

Stocks and Bonds

BOUGHT AND SOLD

McMICK BOLDING,

Salt Lake City, Utah

B. M. CALKINS

PHONE "BLACK" 891.

J. J. LONERGAN

LONERGAN & CALKINS.

Gold AND Silver Refiners AND Assayers

MINING EXPERTS AND PROMOTERS

Miner's Gold and Silver Bought

Also Old Gold and Silver

Agents for S. S. LIGHTFOOT SYNDICATE

Cable Address "LonerGAN, Los Angeles"

London, England.

127 W. FIRST ST. LOS ANGELES, CAL.

Assayers and Chemists

WADE & WADE

Best and Oldest Establishment in Southern Cal.

115½ N. Main St., Los Angeles, Cal.

AUSTIN BROS.

IRON, STEEL, MACHINISTS
AND BLACKSMITH SUPPLIES

Iron Pipe, Oil Cups, Lubricators, Belting, Packing,
Lacing, Asbestos Covering, Steam and Water Gauges,
Shovels and Picks. Fairbanks Scales, Brass and
Iron Steam Fittings, Etc., Etc.

Stockton, Cal.

THE CHRYSOMETER.

A CHEMICAL ASSAY OUTFIT. Anyone
can use it. Chemicals enough for 100 assays
with each \$45 outfit. J. W. PETTER, Sole
Manufacturer, 907 17th Street, Denver, Colo.

Cobb & Hesselmeyer,

MECHANICAL ENGINEERS

Hydraulics, Power, Tests, etc.

421 Market Street, Rooms 70 and 71
SAN FRANCISCO, CAL.

An Assay

Will show what is in your
ore.....

A Mill Test

Will show what you can get
out of it

We Do Both

Practical working tests made
of ALL CLASSES OF ORES and
advice given as to best
methods of extracting values.
Mines examined and reported
on. Twenty years experi-
ence with Pacific Coast ores.

F. M. Johnson & Co.

23 Stevenson Street,

SAN FRANCISCO, CAL.

LOS ANGELES SEWER PIPE ASSOC'N.

MANUFACTURERS OF

Fire Brick, All Fire Clay Products, Milled Fire Clay, etc.

For Fire Boxes, Lime Kilns, Furnaces and Smelters.

Also Dealers in English Fire Brick

Special Facilities for Supplying Assayers and the Trade of the Southwest.

649 and 651 S. BROADWAY,

LOS ANGELES, CAL.

PATENTS!

TOWNSEND BROTHERS
SOLICITORS
OF PATENTS

Patents on Inventions secured in all countries. Copyrights, Trade Marks and Labels.

Office, 9, Downey Block,

Telephone 347. Los Angeles, Cal.

GOLD

— AT —

CRIPPLE CREEK.

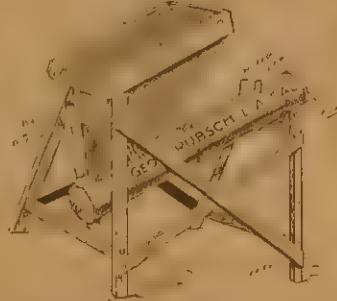
The heart of the Mining District is reached by the Midland Terminal Railway, which is the direct connection of the

Atlantic and Pacific Railroad
Southern California Railway

Through Palace Sleeping Cars and Through Tourist Sleeping Cars run every day from both San Francisco and Los Angeles to La Junta, Colorado, where immediate connection is made for the

GOLD DISTRICT

Through Tickets and Sleeping Car Reservations can be obtained at the Ticket Office of the Santa Fe Route

644 Market St., San Francisco
2d and Spring Sts., Los Angeles

The Little Water Gold Washer

For full particulars apply

219 Commercial St., LOS ANGELES, CAL.

REPRESENT LEADING PROPERTIES

Surveys and examinations made and reports furnished by the most competent experts

CORRESPONDENCE SOLICITED

Information promptly furnished. Address

J. C. O'Bannon,

DURANGO, MEXICO

DENVER PUBLIC --- SAMPLING WORKS,

M. E. SMITH, PRESIDENT.

ORES SOLD ON THE PUBLIC MARKET. Denver, Colo.

Attention Mining Men!

J. MAIT'S DRY GOLD SAVER

Manufactured and Exhibited at

625 Howard Street, San Francisco, Cal.

FINE Gold Saved as Easily as the COARSE. NO WATER required for Cleaning up. We save 98 per cent. Come and witness a test on dry ground. Capacity of Standard Machines 10 Tons. Weight 125 lbs. Price \$50.00; First-Class Material Used Throughout.

Capacity of Small Machine 3 Tons; Weight 80 pounds; Price \$30.00

Machines are easily Taken Apart to be packed or carried anywhere.

We build Machines to any size—power or hand. Orders promptly attended to. Call or write for Circulars.

F. GOTTFRIED, General Manager and Manufacturer,

625 Howard Street, San Francisco, Cal.



G. C. FOWLER,

650-58 HOWARD STREET, SAN FRANCISCO.

W. T. SMITH

JAMES IRVING

SMITH & IRVING,

FORMERLY, W. T. SMITH & CO.

Gold Refiners and Assayers.

Refusion to any value bought and Cash paid for the same day it is received.

We guarantee two (2) assays on every sample left with us.

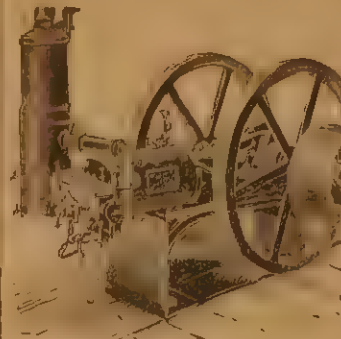
Our Mr. Smith owned and operated Smelting, Refining and Chemical works in

Pima, Arizona, for over 20 years.

128 N. Main Street

Los Angeles, Cal.

Cheap Power!



Save Money by Using

"DANIEL BEST" Crude Oil Engine

This Engine can be operated on either Crude Oil, Distillate, Gasoline, or Kerosene. IT IS THE CHEAPEST POWER ON EARTH and is not tied to any one kind of oil, but can use any kind that will make gas and is not handicapped by being compelled to use a certain oil. Do not forget this when in need of an engine.

We guarantee our Engines to work perfectly on California Crude Oil, or Distillate, or any other kind of gaseous oil; we however prefer CALIFORNIA CRUDE OIL, from Coalinga Fresno county, for the reason that gas from Crude Oil will produce more power from the number of feet of gas used than from any other oil and it is also a natural lubricant as well, the valves being always lubricated sufficiently to prevent them from sticking, thus assuring greater durability of the working parts than it otherwise would be in using dry gas. And another advantage we claim is, that danger from explosions is reduced to a minimum, there being no accumulation of gas but is used by the engine as fast as it is generated and hence is absolutely safe. The following is a test that we made with one of our Five-Horse-Power Crude Oil Engines running ten hours on the different gas oils:

Cal. Crude Oil	10 gal.	7 1/2 gals. at 5c.	\$.37 1/2
Distillate	40 "	7 1/2 "	8c.
Down. Coal Oil	40 "	7 1/2 "	12 1/2 c.
Gasoline	71 "	8 1/2 "	15c.
City Gas	1000 feet.		9c.

We manufacture all sizes from two-horse power up, and will guarantee that our Engines will run cheaper and are more simple in construction, have fewer parts and hence are more durable than any other Gas Engines on the market. Seeding is believing; don't take our word for it, but come and investigate for yourselves. You can always see one in operation at our works. We will be pleased to see you and will at all times take pleasure in showing them up. Our Engines are specially adapted for running well and mining machinery—in fact, for any kind of power desired, we are the pioneers and first inventors of Crude Oil and Distillate Engines. WE ALWAYS LEAD AND NEVER FOLLOW. Send for Catalogue and Price List of the only genuine Crude Oil and Distillate Engine made.

The Best Manufacturing Co.
San Leandro, Cal.

METAL MARKET.

New York Quotations:

	SILVER.	COPPER.	LEAD
June 16.	8 1/2	11 1/2	1 1/2
" 17.	8 1/2	11 1/2	1 1/2
" 18.	8 1/2	11 1/2	1 1/2
" 19.	8 1/2	11 1/2	1 1/2
" 20.	8 1/2	11 1/2	1 1/2
" 21.	8 1/2	11 1/2	1 1/2
" 22.	8 1/2	11 1/2	1 1/2
" 23.	8 1/2	11 1/2	1 1/2
" 24.	8 1/2	11 1/2	1 1/2
" 25.	8 1/2	11 1/2	1 1/2
" 26.	8 1/2	11 1/2	1 1/2
" 27.	8 1/2	11 1/2	1 1/2
" 28.	8 1/2	11 1/2	1 1/2
" 29.	8 1/2	11 1/2	1 1/2
" 30.	8 1/2	11 1/2	1 1/2

MINING STOCK QUOTATIONS

BOSTON	
Algonquin	50
Atlantic	28 00
Boston & Montreal	124 00
Butte & Boston	18 50
Cal. & Hecla	370 00
Central	8 00
Franklin	11 00
Kearsarge	18 00
Oscoda	35 00
Quincy	112 00
Tamarack	125 00
Wolverine	10 50

COLORADO SPRINGS STOCKS.	
Alamo	62 1/2
Anaconda	42
Argonaut	27
Bangkok	62
Butte	64
Cal. & Hecla	370
Central	8
Franklin	11
Kearsarge	18
Oscoda	35
Quincy	112
Tamarack	125
Wolverine	10 1/2

DENVER STOCK REPORT	
Aetna	60 1/2
Alamo	62 1/2
Anaconda	42
Argonaut	27
Bangkok	62
Butte	64
Cal. & Hecla	370
Central	8
Franklin	11
Kearsarge	18
Oscoda	35
Quincy	112
Tamarack	125
Wolverine	10 1/2

HELENA, MONTANA	
Am Dan & M Co	85
Butte	2 1/2
Benton Group	10
Bi-Metallic	1 75
Combination	35
Granite Mount	1 25
Hope	50
Iron Mountain	40
Moulton	30
Potosi	80

NEW YORK.	
Crown Point	10
Con. Cal. & Va.	1 80
Gold & Curry	30
Hale & Norcross	80
Homesake	80 50
Quicksilver	17 50
Ontario	10 50
Ophir	71
Plymouth	20
Sierra Nevada	35
Standard	1 75
Union Con	30
Iron Silver	30
Quicksilver	17 50
Quicksilver pfd	17 50
Rulver	22
Yellow Jacket	25
Deadwood	45

SAN FRANCISCO	
Alta	65
Belcher	18
Best & Belcher	72
Bodie Con	65
Chollar	85
Con. Cal. & Va.	1 80
Crown Point	10
Hale & Norcross	80
Mexico	30
Gold & Curry	30
Sierra Nevada	35
Standard	1 75
Union Con	30
Iron Silver	30
Quicksilver	17 50
Quicksilver pfd	17 50
Rulver	22
Yellow Jacket	25
Deadwood	45

ST. LOUIS.	
American Nettle	25
Granite Mt.	1 20
Leo	3
Adams	80
Bi-Metallic	1 75
Small Hope	140

SALT LAKE CITY	
Ajax	70
Alliance	30
Am. Nat. G's	30 1/2
Anchor	1 20
B. & N.	67 1/2
Bull. Beck	9 00
Cent. Rureka	12 50
Daly	5 50
D. & W. West	8 00
Fort Ares	12
Gambier	1 10
Geysar	1 45
Horn Silver	2 22
Little Pittsburg	30
Lucky Bill	20
Mammoth	2 05
Narcus	7 05
Ontario	10 50
Silver King	18 50
Sioux Con	85
Swansea	2 40
So Swansea	1 80
Tetro	65
Uta	97

Note—The above Mexican stocks are figured on the basis of Mexican silver

NEW IMPROVED McGlew Ore Concentrator

IN USE IN

California
Oregon
Washington
Nevada
Arizona Territory
Mexico
Central America
Australia



Patented
Sept.
1893

We guarantee these machines to handle an average of ten tons per 24 hours, and to do cleaner and closer work than any other CONCENTRATOR in use.

Price, \$300 Net Cash, f. o. b.

Write for Descriptive and Testimonial Circulars

THE MCGLEW ORE CONCENTRATOR CO., 131 First Street, San Francisco, Cal.

— GET THE —
ORIENTAL GAS ENGINE
It is the Only Engine on Earth.
Write for Particulars
LOS ANGELES WINDMILL COMPANY
223 E. 4th ST., LOS ANGELES, CAL.
Dealers in all kinds of Pumping and Irrigating Machinery

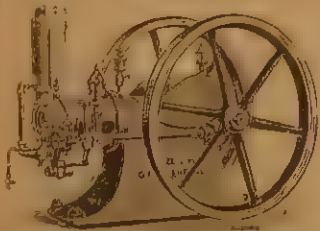
WASHBURN & MOEN MFG. CO.



WIRE ROPE AND WIRE
OF EVERY DESCRIPTION

PACIFIC WORKS

SAN FRANCISCO



Zenith Gas & Gasoline Engine

The Most Perfect Made,
SIMPLE, NOISELESS, ECONOMI-
CAL, SMOOTH RUNNING,
AND EASY STARTING

WM. A. FRUHLING, Agt.

210 and 218 S. Los Angeles St., Los Angeles, Cal.

C. A. LUCKHARDT & CO.

Nevada Metallurgical Works, Established 1869

71 AND 73 STEVENSON STREET, SAN FRANCISCO, CAL.

Assaying, Analyses, Sampling.

Practical Working Tools of Ore by a Process

**STAMP MILL AND CONCENTRATOR IN
OPERATION ON PREMISES**

N. OHLANDT & CO.

MANUFACTURERS OF

Best Quality of BONE ASH for Assayers.

Our Goods are used in all parts of the United States and Mexico.

EXTRA No. 1 and No. 2

CORRESPONDENCE SOLICITED

327 MARKET STREET, SAN FRANCISCO, CAL.

MINING PIPE



STEEL OR IRON.—We make pipe of either, but recommend STEEL, it being superior to iron in many particulars and inferior to none.

WRITE FOR CIRCULARS OF
THE TRUAX PATENT AUTOMATIC ORE CARS.

SCHAW, INGRAM, BATCHER & CO., Hardware Merchants
SACRAMENTO, CALIFORNIA.

The Harrington & King Perforating Co.

METALS PERFORATED AS REQUIRED

FOR MINING SCREENS OF ALL KINDS FOR USE IN

Mining and Milling Machinery, Re-
duction and Concentrating Works

Standard Sizes Perforated Tin and Brass Always in Stock

— MAIN OFFICE AND WORKS, 214-243 NORTH UNION ST., CHICAGO, ILL.

Dry Gold Washers

ADAPTED TO PLAGER MINING

MANUFACTURED BY

F. F. COLLINS,

MANUFACTURING CO.
SAN ANTONIO TEXAS

Send for Catalogue of General Pumping
and Water Supplies.



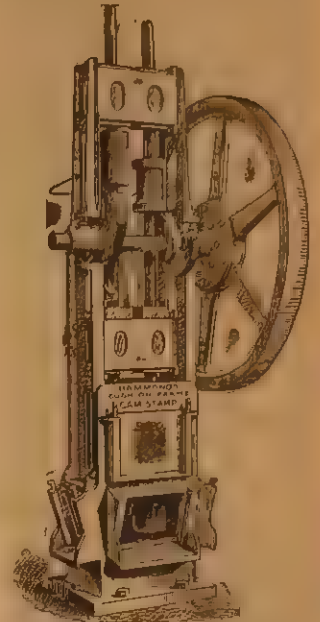
The Mining and Metallurgical Journal

Is the *ONLY* publication in the *SOUTHWEST* devoted to the Mining Industry and circulates in every *MINING CAMP* or place where there is a *MINE, MILL* or *SMELTER* in California, Mexico, Lower California, Arizona, New Mexico, Texas, Nevada, Utah and Colorado. It has a *LARGER* circulation in *Southern California, Mexico,* Lower California, Arizona, New Mexico and Texas than any other *MINING JOURNAL* published and is therefore the best advertising medium for those seeking business with the Mines Mills and Smelters.



HAMMOND MANUFACTURING CO.

MANUFACTURER OF STAMP MILLS CONCENTRATORS And all Classes of MINING MACHINERY



Wire Rope Tramways with Automatic Loading Apparatus permitting the ore bins to be permanently open.

Specially made of the Improved, Iron Frame Self-Contained Stamp Mill, the greatest success of the day in reduction of ore to pulp. A great boon to mill builders in countries where timber is plenty and therefore a greater boon to those who have no timber from which to draw the huge pieces needed in old style mills. We claim for this mill:

- 1st. It is no longer a new thing, but well tried and its durability proven.
- 2d. Cheaper than the Wooden Frame Mill when ready to run.
- 3d. Saves a great amount of delay in erection and it can be set up in as short a time as a self contained engine.
- 4th. Saves much space.

We call the attention of Prospectors to our Self Contained Two Stamp Mill.

We have inaugurated a system of amalgamation and Concentration which renders both much more satisfactory and cheapens the cost of concentration by a great saving in the repairs to the complicated machinery now used.

Parties intending erecting mining plants would do well to investigate our mills. We build any mill desired and will deliver F. O. B. Steamer or cars at San Francisco, California.

We are prepared to furnish parties desiring small plants in localities where fuel is extremely expensive, with mills coupled up and ready to run with gaso-

engines, guaranteeing the efficiency of both engine and mill.
Write us for Catalogues and Estimates

69 First Street,
PORTLAND, OR.

THE JOHANNESBURG SAMPLING WORKS

Purchasers of Gold, Silver, Copper and Lead Ores and Concentrates

Cash Returns Made Within Twenty-four hours after receipt of Ore.

CHAS. R. WORES, MANAGER,

Johannesburg, Cal.

SHEPARD, WHEELER & RHODES

Mining Engineers and U. S. Deputy Mineral Surveyors.

Have a Complete and Accurate Map made from Actual Surveys, showing all Mining Claims in the Randsburg Mining District.
Price, \$10.00 Randsburg Cal.

RANDBURG A. J. PETTER, MINING ENGINEER AND ASSAYER

Examiner and Dealer in Mines. Have several properties listed for sale. Correspondence solicited with intending purchasers.

H. L. NELSON & CO. Real Estate and Mining Broker

Abstract Bureau & Notary Public.
Correspondence Solicited,
RANDBURG AND JOHANNESBURG, CALIF.

Nolan & Smith Mining - Brokers

Capital Furnished for Purchase of Mines and Prospects.
Also for Development of those that have merit.
Send description and Samples
228 W. SECOND ST., LOS ANGELES, CAL.

E. E. BURLINGAME'S ASSAY OFFICE

Chemical and Laboratory
Established in Colorado, 1866. Samples by mail or express will receive prompt and careful attention. Gold and Silver Bullion refined, melted and assayed, or purchased.
Address 1736 and 1738 Lawrence St., Denver, Col.

Union Iron Works

Manufacturers of and Dealers in

**Mining,
Milling,
AND
Smelting**

MACHINERY

Foundry and Machine Shops.
ALBERT THOMAS, Prop.
First and Alameda Sts. Los Angeles, Cal.

Miners' Assay Office

LOUIS SECKELS, MANAGER
24 W. 2d, South St., Salt Lake City, Utah
P. O. Box, 1315.
Assay for Gold and Silver 75 Cents.
Samples sent by mail or express will receive Prompt and Careful Attention.

GOLD IN COLORADO!

Colorado has within its limits some of the greatest gold mines that have ever been discovered. In Cripple Creek in 1892 there were a few prospector's looking over the hills; in 1896 the camp turned out over \$10,000,000 in gold. The West Creek district which is only thirty miles north of Cripple Creek is being thoroughly prospected and is one of the most inviting fields at the present time for the mines. The Denver and Rio Grande railroad has built a substantial stage road from Palmer to Lambertton which will greatly shorten the distance between Denver and the West Creek district. Leadville, the old bonanza camp and the mineral product of which made Denver what it is today, is becoming a big producer of gold. The low price of silver has driven all the men and capital who were formerly in silver mining to gold mining and the new inventions for working low grade gold ores together with the discoveries made to work rebellious ores has opened up a field for the miners such as they have never enjoyed before and Colorado has inducements to offer such as no other district in the world possesses, the record of the state in gold production for the last three years speaks for itself. Among the other prominent camps in the state are Telluride, Ophir, Rico, Silverton, Mineral Point, Durango, La Plata, Ouray, Saw Pit, Ironton, the Gunnison District and many others. New finds are being made and new camps are springing into existence every day. The Denver & Rio Grande railroad, which is the pioneer road of Colorado and which has always been the miner's friend, reaches all the mining camps in Colorado. For elegantly illustrated descriptive books, free, of mines in Colorado, send to
ED. V. SHOTWELL, General Agent
314 California St., San Francisco, Cal.
S. K. HOOPER,
General Passenger Agent, DENVER, COLO.

It Pays to Advertise in the Journal.

Los Angeles Business College

212 WEST THIRD ST., LOS ANGELES, CAL.

Gives a thorough course in PRACTICAL ASSAYING and CHEMICAL ANALYSIS in connection with their other courses of study. For full information address them as given above.

School of Practical, Civil, Mechanical, Electrical and Mining Engineering.

Surveying, Architecture, Drawing and Assaying.
933 MARKET ST. SAN FRANCISCO, CAL.
OPEN ALL YEAR
PROF. VAN DER NAILLEN, Jr., President.
Assaying of Ores, \$25; Bullion and Chlorination Assay, \$25. Blowpipe Assay \$10. Full Course of Assaying, \$50. Established 1864.
Send for Circular

BELTING Of all Descriptions,

FOR MILLS MINES AND SMELTERS

Specialties
DYNAMOS, WATER PROOF,
RAWHIDE AND SEWED
BELTING.

Fred R. Cook,
208 Mission Street, San Francisco, Cal.

JOHN P. CULVER, Civil Engineer.

FRANK H. JACKSON, Mining Engineer

J. K. EVELETH

V. H. M. MACLYMONT

JOHN P. CULVER & COMPANY,

EVELETH & MACLYMONT,

ASSAYERS

Assays and Analyses of Ores, Practical Mill-tests by 2-Stamp Mill and Concentrating Plant

10 Annie Street, San Francisco (Opposite Palace Hotel)

Cable Address: Villamont, San Francisco

Telephone: Main 733

ASSAYERS, MINERALOGISTS and MINING ENGINEERS.

145 South Broadway, - LOS ANGELES, CAL.

W. W. MONTAGUE & CO.

MANUFACTURERS OF

Riveted Sheet Iron and Steel

WATER PIPE

For Hydraulic Mining Power Plants and Mills.

Iron Out, Punched and Formed for Making Pipe on the Ground Where Required to Save Freight.

GALVANIZED IRONAir Pipe, Concentrator Rolls, Water Tanks
SAN FRANCISCO, CAL.**THE BI-METALLIC ASSAY OFFICE**

AND CHEMICAL LABORATORY.

Assaying in all its branches. Determinations accurately made.

R. A. PEREZ, E. M., Mgr.,

FORMERLY: Chief Assayer El Paso Smelting Works, El Paso, Tex.
Assistant Chemist Consolidated Kansas City Smelting and Refining Co., Argentine, Kansas.

(Prompt Returns.)

124 S. MAIN ST., LOS ANGELES CAL.

#33,014,000

Paid in Dividends by Utah Mining Stocks

Weekly Market Letter on Application
Quotations by Wire or Mail.JAMES A. POLLOCK, Mining Stock Broker,
SALT LAKE CITY, UTAH**KENNETH DONNELLAN**
Stock & Mining BrokerWeekly Quotations furnished on request
Reference: Any Bank or Banker
in Salt Lake City Utah.

Quartz Screens

A specialty. Round, slot
or burr slot holes
Genuine Russian Iron,
Homogeneous Steel, Cast
Steel or American plan-
ished Iron, Zinc, Cop-
per or Brass Screens for all purposes. CALIFORNIA

PERFORATING SCREEN CO., 145-147 Beale St., S. F.

UNION HARDWARE AND METAL CO.

— DEALERS IN —

Boiler Tubes, Iron Pipe and Fittings

RAILROAD, MILLING, MINING and FOUNDRY SUPPLIES

214 and 216 N. Los Angeles Street

Los Angeles, Cal

**THE WILSON**

Forged High Grade Steel

Shoes and DiesGuaranteed to Wear Longer and Prove Cheaper than any others.
Made by use of Special Appliances. Patented Aug. 16th, 1892.

— Made only by —

WESTERN FORGE AND ROLLING MILLS,
St. Louis, Missouri**JOSHUA HENDY MACHINE WORKS**

SOLE AGENTS

38 to 44 Fremont Street,

San Francisco, Cal.

**J. H. MASTERS,**

Manufacturer of and Dealer in

Ore Sacks, Tents & Camp

Furnishings

218 Commercial St.,

LOS ANGELES, CAL.

**TANKS**OF EVERY DESCRIPTION
FOR —

Mines, Mills and Cyanide Plants

Patent Non-Shrinking Water TanksThe only Tank that will stand the Desert
and Hot ClimateWrite for Catalogue and Estimate on any kind
of Tank Work**Pacific Tank Co.**

33 BEALE ST., SAN FRANCISCO

**To Gold Miners!****Silver Plated Copper AMALGAMATING PLATES**

For Saving Gold In Quartz and Placer Mining.

EVERY DESCRIPTION OF MINING PLATES MADE

Only Best Copper and Refined Silver Used. Old Min-
ing Plates Replated. Twenty-six Medals Awarded
Gold, Silver, Nickel, Copper & Brass Plating.**Denniston's San Francisco Plating Works**

653 and 655 Mission Street, San Francisco, Cal.

— Telephone, Main 5931. —

E. G. DENNISTON,

Proprietor

Send for Circular.

FRUE ORE CONCENTRATOR

Over 4,200 in Actual Use

Manufactured under Patents of April 27, 1880 Sept. 18, 1893 July 24, 1898, and March 31, 1899



It can be safely stated, without going into a description of several new and untried concentrators that have lately come into the market, that where sulphurets are of such value as to make close saving necessary, the Frue Vanner is always used. It is the only endless belt concentrator in the market that can be relied on to handle all classes of ores, and give universal satisfaction. (In all competition of concentrators the Frue Vanner is taken as the standard machine of the world. All comparisons made by it. There have been over 4200 of these machines sold, 1700 having been sold on the Pacific Coast alone.) They are in use in every part of the world where mining is carried on, and in all cases they are giving perfect satisfaction. From time to time valuable and important improvements have been made in this machine to increase its capacity and durability, and particular attention is called to the Patent Lip Flange for the rubber belt, which does away with nearly all the strain and cracking, as in the old style of flange, making the life of belt more than double that of other style belts in the market. The lip of flange bends outward in going over the large end rolls, thereby distributing the strain in the solid rubber, and bringing virtually no strain either at the edge or at the base of flange, as is the case in all belts with a raised edge.

Price of 4-foot wide Plain Belt Frue Vanner	5500 f.o.b.
" " Improved Belt Frue Vanner	6000 f.o.b.
" " 6-foot wide Plain Belt	6000 f.o.b.

For any information, pamphlets, circulars or testimonials, call on or address

JAS. S. BROWNELL,Western Agent **FRUE VANNING MACHINE CO.**
Successor to ADAMS & CARTER

132 Market Street,

San Francisco

F. M. ENDLICH,
Late Mineralogist Smithsonian Institution**GEO. F. HOYT,**
U.S. Deputy Mineral Surveyor**ENDLICH & HOYT.****Mining Engineers and Metallurgists**Mines and Processes examined and reported on. Specialties:—Treatment of
Low-grade Ores, Concentration, Cyanide Leaching, Designing, and
erection of suitable plants for refractory ores. Mines bought
and sold. Only properties that will stand closest in-
vestigation considered. Surveying and am-
pire Assays and Analyses.

Correspondence Solicited.

Office: 201 Bullard Block,

Los Angeles, Cal.

INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of Dividend	Date of Last Dividend	Total Amount of Dividends	Kind of Minerals
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	June 1897	\$ 100,000	Q
Adams	Colorado	1,500,000	1,500,000	5	0 04	October 1895	604 00	S, L, C
Alaska, Fredwell	Alaska	200,000	5,000,000	25	10	January, 1897	3,000,000	G
Alaska Mexican	Alaska	200,000	1,000,000	5	37 1/2	January, 1897	191 63 1/2	G
Anaconda	Montana	100,000	30,000,000	25	1 25	Nov 1896	2 25 000	C
Anchorage Island	Colorado	600,000	600,000	1	01	May 1897	60 000	G
Atlantic	Michigan	10,000	1,000,000	25	1 00	Feb 1897	740 000	C
Butte	Montana	2,000,000	2,000,000	1	03	June 1896	476 500	S, G
Bangkok & Bell	Colorado	600,000	600,000	1	1	July 1896	107 500	S, L, C
Big Six	Colorado	500,000	5,000,000	1	00 1/2	April 1897	5 000	G, S
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Feb 1897	5 27 000	G, C, S
Buffton Beck and Champ	Utah	100,000	1,000,000	10	20	Jan 1897	1,007 000	G, S
Cariboo	British Col	800,000	800,000	1	02	Dec 1896	12 410	G
C. O. D.	Colorado	500,000	500,000	1	01	March 1896	27 000	G
Calumet & Hecla	Michigan	100,000	2,500,000	25	15 00	Feb 1897	18 350 000	C
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Jan 1897	1 800 000	S, L
Champion	California	3,400	7,000	10	15	April 1897	27 200	G
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3 592 000	S, G
Contra	Nevada	100,000	10,000,000	10	04	Feb 1895	77 000	C
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	25	June 1895	1 910 000	C
Daly	Utah	150,000	3,000,000	20	25	August 1896	2 887 500	S, L
Deadwood Terra	Dakota	200,000	5,000,000	25	50	August 1896	1 240 000	G
De Lamar	Idaho	400,000	2,000,000	5	25	October 1896	2 250 000	S, L
Derbec & Gravel	California	100,000	10,000,000	100	05	March 1894	26 000	G
Dalton and Lark	Utah	2,500,000	2,500,000	1	00 1/2	August 1896	87 000	S, L
Elkhorn	Montana	200,000	1,000,000	5	06	June 1897	1,212 000	S
Elkhon Consolidated	Colorado	1,250,000	1,250,000	1	02	May 1897	209 000	G, S
Enterprise	Colorado	500,000	2,500,000	5	25	June 1895	825 000	G
Florence	Montana	500,000	2,500,000	5	01	Jan 1897	118 000	G
Franklin	Michigan	40,000	1,000,000	25	2 00	January 1894	1,240 000	C
Galena	Utah	100,000	1,000,000	10	05	Jan 1897	71 000	G, S, L
Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Dec 1896	21 000	G
Golden Eagle	Colorado	1,000,000	1,000,000	1	01	Sep 1896	10 000	G
Golden Dove	Colorado	600,000	600,000	1	01	Feb 1897	69 179	G
Gold Con.	Colorado	200,000	1,250,000	5	10	May 1897	110 000	G, S
Gold and Globe	Colorado	750,000	750,000	1	3-10	August 1896	96 000	G
Granite Mountain	Montana	400,000	10,000,000	25	20	July 1892	12 120 000	G
Great Western	California	50,000	5,000,000	100	10	November 1893	288 000	Q
Hecla Consolidated	Montana	30,000	1,500,000	50	50	January 1897	2,460 000	S, G, L, C
Helena & Fresno	Idaho	500,000	2,500,000	5	04	August 1896	475 000	S, L
Homestake	Dakota	125,000	12,500,000	100	25	Jan 1897	6,118,750	G
Hope	Montana	100,000	1,000,000	10	10	February 1897	662 252	S
Horn Silver	Utah	400,000	10,000,000	25	12 1/2	January 1896	5,147 000	S, L
Iowa	Colorado	1,000,000	310,000	1	00 1/2	Feb 1897	63 000	G
Iron Mountain	Montana	500,000	5,000,000	10	06	Nov 1896	192 500	S
Isakella	Colorado	2,250,000	5,000,000	100	02 1/2	Mar 1897	2,087 500	G
Kearney	Michigan	40,000	1,000,000	25	00	Dec 1895	120 000	C
Kennedy	California	100,000	10,000,000	1	48	August 1895	1,796 000	G
Leadville Consolidated	Colorado	400,000	4,000,000	10	03	February 1894	216 000	S, L
Mall of Erin	Colorado	600,000	3,000,000	5	02	November 1895	740 000	S, L, G, C
Mayflower	California	60,000	1,200,000	20	10	December 1896	212 000	G
Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1896	3 210 000	I
Mollie Gibson	Colorado	1,000,000	5,000,000	5	05	January 1895	1 080 000	S
Montana L.	Montana	660,000	3,300,000	5	04 1/2	October 1895	2,890,637	G, S
Moose	Colorado	900,000	900,000	1	01	January 1896	186 000	G
Morning Star	California	2,400	240,000	100	50	May 1897	310 000	G
Mountain	Montana	400,000	2,000,000	5	05	February 1894	190 000	S, G
Mt Rosa	Colorado	1,000,000	1,000,000	1	00 1/2	Oct 1896	70 000	G
Mercur	Utah	200,000	5,000,000	25	12 1/2	Jan 1897	600 000	G
Mammoth	Utah	400,000	10,000,000	25	05	Nov 1896	1,150 000	G, S, C
Moon Anchor Gold	Colorado	600,000	600,000	1	01	July 1896	240 000	G
New Elkhorn	Colorado	400,000	1,500,000	5	24	Sep 1896	72 000	G
New York & Hon. Rosario	Central A	150,000	1,500,000	10	10	Jan 1897	690 000	S, G
Napa	California	100,000	700,000	7	10	April 1897	830 000	Q
New Liria Quicksilver	California	100,000	1,000,000	10	10	June 1897	10 000	Q
North Star	California	100,000	1,000,000	10	50	June 1894	4,000	G
Nugget	Colorado	1,000,000	1,000,000	1	00 1/2	Jan 1895	10 000	G
Omaha Consolidated	California	21,000	2,100,000	100	15	July 1894	97 200	G
Ontario	Utah	150,000	15,000,000	100	10	January 1897	13 570 000	S, L
Oreola	Michigan	50,000	1,250,000	25	1 00	February 1897	2 122 000	C
Pacific Coast Borax	California	20,000	2,000,000	100	1 00	July 1893	422 000	B
Parrot	Montana	230,000	2,300,000	10	10	June 1894	1,622 000	C
Pennsylvania Consolidated	California	51,500	5,150,000	100	05	May 1897	12 925	G
Phonax Eureka	Colorado	110,000	1,100,000	10	18	October 1893	2,696 293	G
Portland	California	3,000,000	3,000,000	1	01	May 1897	1,015 000	G, S
Quicksilver Pref.	Michigan	43,000	4,300,000	100	25	June 1894	1 824 911	Q
Quincy	Idaho	50,000	1,250,000	25	00	February 1897	9 070 000	C
Red Cloud	Colorado	200,000	1,000,000	5	10	December 1892	154 000	S, L
Sierra Buttes	California	222,500	2,225,000	10	12	October 1893	1,559 933	G
Silver, Mg	New Mexico	500,000	500,000	1	4 05	December 1891	300 000	S
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	March 1896	3,270 000	S
Standard	California	100,000	10,000,000	100	10	March 1897	3,775 868	G, S
St Joseph	Missouri	250,000	2,500,000	10	25	Dec 1895	2,324 000	L
Silver King	Utah	150,000	3,000,000	20	25	Jan 1897	90 000	S, L, G
Smuggler Union	Colorado	50,000	5,000,000	100	1 00	October 1896	140 000	G, S
Tom Boy	Colorado	200,000	200,000	10	20	March 1896	410 000	C
Tamarack	Michigan	50,000	1,250,000	25	3 00	Dec 1896	4,770 000	C
Trinity River	Colorado	600,000	600,000	1	01	April 1894	37 300	G
Union	Colorado	1,250,000	1,250,000	1	01	June 1896	74 000	S
United Verde	Arizona	300,000	3,000,000	10	25	December 1893	562 800	C
Utah	Utah	100,000	1,000,000	10	02	Nov. 1896	175 000	G, S
Victor	Colorado	200,000	1,000,000	5	10	Mar 1897	765 000	G
War Eagle	B. O.	500,000	500,000	1	06	October 1896	187 000	G

S, Silver.

G, Gold

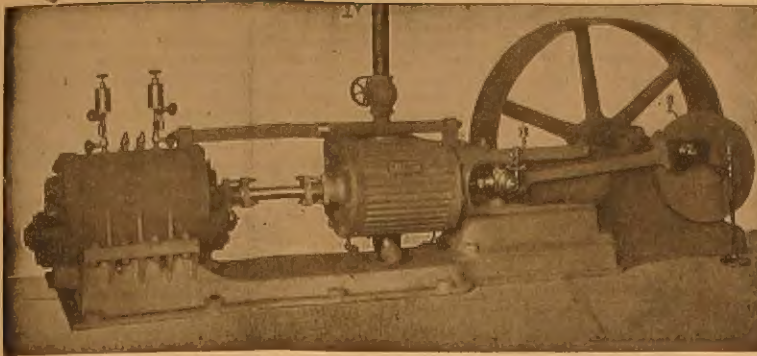
L, Lead.

C, Copper.

Q, Quicksilver.

I, Iron.

B, Borax.



AIR COMPRESSOR

FULTON ENGINEERING — AND — SHIPBUILDING WORKS

MINING AND MILLING MACHINERY

Adapted to every description of Mining and Milling.

Office and Branch Works, 213 First street, San Francisco, Cal

C. DUCOMMUN,

300-302 N. MAIN STREET,

LOS ANGELES

Assayers Materials, Mine AND Mill Supplies

Dixon's Black Lead Crucibles, Denver Fire Clay Crucibles,
Muffles, Scorifiers, etc.; Quicksilver, Drill Steel,
Retorts, Mortars, Gold Pans, Drilling Ham-
mers, Drifting Picks, Horn Spoons
and Shovels.

The Machinery and Electrical Company,

— Sole Agents —

Southern California, Arizona and Northern Mexico.

For

TREMAIN STEAM STAMP MILLS,

Oil City Boilers and Engines,

Rumsey Power Pumps,

LAWRENCE CENTRIFUGAL PUMPS,

Egan Wood-Working Machinery,

Bates Corliss Engines, Bliss Turned Steel Shafting,

SNOW STEAM PUMPS,

Olin Gas Engines, Bradford Mill Co. Lathes

GATES IRON WORKS MINING MACHINERY

Jewel Leather Belting,

Globe Rubber Belting,

Garlock Packing.

Westinghouse Electric and Manufacturing Company's

Lighting Railway and Transmission Apparatus

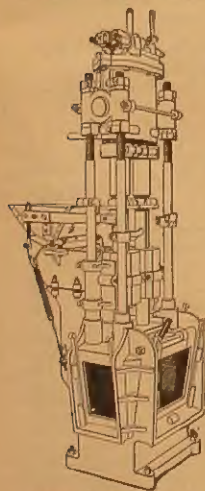
Sawyer-Man Incandescent Lamps,

Washburn & Moen Mfg. Co's Wires and Cables.

Also Dealers and Jobbers in

Shafting, Hangers, Boxes, Dodge Wood Pulleys, General
Mining Machinery, Mining Hoists, Whims, Ore Buck-
ets, etc. All kinds of Electrical & Engineering Supplies

351 & 353 N. Main St. Los Angeles, Cal.



TREMAIN STEAM STAMP

HALLIDIE PATENT ROPEWAY

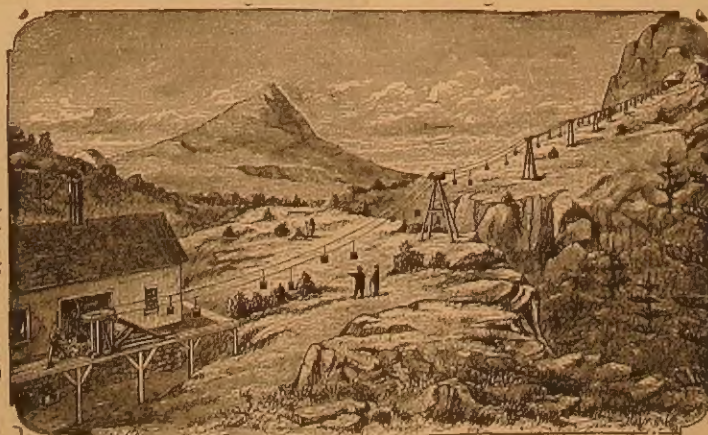
— FOR THE —

Transportation of Ore, Fuel and other
material, has been erected by us all over
the country and is the most economical
and efficient method known. Nothing
to get out of order; has always given
satisfaction.

California Wire Works

[LICENSEES]

Office, 8 Pine Street, San Francisco, Cal.



Mention the Journal

We Manufacture

STAMP MILLS, CRUSHERS, CONCENTRATORS, ENGINES, PUMPS, HOISTS,

Stockton Gas Engine, Water Wheels, Wood, Iron, and
Clutch Pulleys, and general repairing of all kinds
of Wood and Iron. All work done in our
own Shop. Estimates furnished
for Plants Complete.

Best equipped works in California. outside of
San Francisco.

CORRESPONDENCE SOLICITED



Matteson Manufacturing Co.

STOCKTON, CALIFORNIA.

Los Angeles Tent and Awning Company

Manufacturers of

Tents, Wagon Covers, Ore Sacks, and Camp Furniture

A. W. SWANFELDT, Proprietor.

250 SOUTH MAIN STREET, LOS ANGELES, CAL

WIRE TRAMWAYS

Ropeways,
* Incline Planes,
and Railways.

Hoisting Apparatus, Patent Grip Pul-
leys, Transmission of Power by Wire
Ropes; 25 years experience; Send for
Ropeway Pamphlet.

California Wire Works

WORKS:

332 Bay Street, San Francisco, Cal.

ORE TARIFF.

From Points in Mexico, New Mexico, Texas and Arizona, to
El Paso, Pueblo, Denver and Kansas City.

ATCHISON, TOPEKA & SANTA FE R. R.

FROM	TO	Car Loads, in dollars and cents per ton of 2,000 lbs.			
		Ore Concentrates	Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$300 per ton.
SONORA RAILWAY	Guaymas, Mex.	El Paso	10.00	11.50	13.50
		Pueblo	12.50	14.00	16.00
		Denver	14.50	15.00	17.00
		Kansas City	15.50	17.00	18.00
	Ortiz, "	El Paso	3.50	11.00	13.00
		Pueblo	12.00	13.50	15.50
		Denver	13.00	14.50	16.50
		Kansas City	14.50	16.00	18.00
	Torres, "	El Paso	3.00	10.50	12.50
		Pueblo	11.50	13.00	15.00
		Denver	12.50	14.00	16.00
		Kansas City	13.50	15.00	17.00
HERMOSILLO, "	El Paso	El Paso	8.50	10.00	12.00
		Pueblo	10.00	12.00	14.00
		Denver	12.00	13.50	15.50
		Kansas City	12.00	13.50	15.50
	Pesqueira, "	El Paso	8.50	10.00	12.00
		Pueblo	10.50	12.00	14.00
		Denver	11.50	13.00	15.00
		Kansas City	12.00	13.50	15.50
	Querohabi, "	El Paso	7.50	9.00	11.00
		Pueblo	10.00	11.50	13.50
		Denver	11.00	12.50	14.50
		Kansas City	11.50	13.00	15.00
MAGDALENA, "	El Paso	El Paso	7.00	8.50	10.50
		Pueblo	9.50	11.00	13.00
		Denver	10.50	12.00	14.00
		Kansas City	11.00	12.50	14.50
	Imuris, "	El Paso	7.00	8.50	10.50
		Pueblo	9.50	11.00	13.00
		Denver	10.50	12.00	14.00
		Kansas City	11.00	12.50	14.50
	Nogales, A. T.	El Paso	6.50	8.00	10.00
		Pueblo	9.00	10.50	12.50
		Denver	10.00	11.50	13.50
		Kansas City	11.00	12.50	14.50
CALABAZAS, "	El Paso	El Paso	6.00	7.50	9.50
		Pueblo	8.50	10.00	12.00
		Denver	9.50	11.00	13.00
		Kansas City	10.50	12.00	14.00
	Sanford, "	El Paso	6.50	8.00	10.00
		Pueblo	9.00	10.50	12.50
		Denver	10.00	11.50	13.50
		Kansas City	11.00	12.50	14.50
	Crittenden, "	El Paso	5.50	7.00	9.00
		Pueblo	8.00	9.50	11.50
		Denver	9.00	10.50	12.50
		Kansas City	10.00	11.50	13.50
FAIRBANK, "	El Paso	El Paso	4.40	5.90	7.40
		Pueblo	6.90	8.40	9.90
		Denver	7.90	9.40	10.90
		Kansas City	8.90	10.40	11.90
	Tucson, "	El Paso	4.35	5.85	7.35
		Pueblo	6.85	8.35	9.85
		Denver	7.85	9.35	10.85
		Kansas City	8.85	10.35	11.85
	Benson, "	El Paso	8.00	9.50	11.00
		Pueblo	10.50	12.00	13.50
		Denver	11.50	13.00	14.50
		Kansas City	12.50	14.00	15.50
STEIN PASS, N. M.	El Paso	El Paso	8.00	9.50	11.00
		Pueblo	10.50	12.00	13.50
		Denver	11.50	13.00	14.50
		Kansas City	12.50	14.00	15.50
	Lordsburg, "	El Paso	7.50	9.00	10.50
		Pueblo	10.00	11.50	13.00
		Denver	11.00	12.50	14.00
		Kansas City	12.00	13.50	15.00
	Silver City, "	El Paso	2.50	4.00	5.50
		Pueblo	5.00	6.50	8.00
		Denver	6.00	7.50	9.00
		Kansas City	7.00	8.50	10.00
DEMING, "	El Paso	El Paso	2.20	3.70	5.20
		Pueblo	4.70	6.20	7.70
		Denver	5.70	7.20	8.70
		Kansas City	6.70	8.20	9.70
	Florida and Lake Valley, "	El Paso	2.20	3.70	5.20
		Pueblo	4.70	6.20	7.70
		Denver	5.70	7.20	8.70
		Kansas City	6.70	8.20	9.70
	Nutt, "	El Paso	2.20	3.70	5.20
		Pueblo	4.70	6.20	7.70
		Denver	5.70	7.20	8.70
		Kansas City	6.70	8.20	9.70
EL PASO, "	El Paso	El Paso	1.50	3.00	4.50
		Pueblo	4.00	5.50	7.00
		Denver	5.00	6.50	8.00
		Kansas City	6.00	7.50	9.00
	Las Cruces, "	El Paso	2.00	3.50	5.00
		Pueblo	4.50	6.00	7.50
		Denver	5.50	7.00	8.50
		Kansas City	6.50	8.00	9.50
	Rincon, "	El Paso	2.00	3.50	5.00
		Pueblo	4.50	6.00	7.50
		Denver	5.50	7.00	8.50
		Kansas City	6.50	8.00	9.50

FROM

TO

Car Loads in dollars and cents per ton of 2,000 lbs.

Ore Concentrates

Valuation not to exceed \$50 per ton.

Valuation not to exceed \$100 per ton.

Valuation not to exceed \$300 per ton.

Lead Bullion, valuation not to exceed \$100 per ton.

Base Metal, Copper Matte, Bar and Black Copper, valuation not to exceed \$300 per ton.

A. T. & S. F. R. R.

ATLANTIC & PACIFIC RAILROAD

El Paso	2.20	2.60	3.00	3.40	3.80	4.20	4.60	5.00
Engle, N. M.	Pueblo	5.50	7.00	9.00	10.00	11.00	12.00	13.00
Crocker, "	Denver	6.50	9.00	10.00	11.00	12.00	13.00	14.00
	Kansas City	7.50	9.00	11.00	14.00	15.00	16.00	17.00
El Paso	2.20	2.80	3.60	4.50	5.40	6.30	7.20	8.10
Lava	Pueblo	5.20	5.70	6.70	7.70	8.70	9.70	10.70
	Denver	6.20	7.20	8.20	9.20	10.20	11.20	12.20
	Kansas City	7.20	8.70	10.70	13.00	15.00	16.00	17.00
El Paso	2.40	3.00	4.50	5.50	6.50	7.50	8.50	9.50
San Marcial,	Pueblo	5.20	6.70	8.70	9.70	10.70	11.70	12.70
	Denver	6.20	7.70	9.70	10.70	11.70	12.70	13.70
	Kansas City	7.20	8.70	10.70	13.00	15.00	16.00	17.00
El Paso	2.60	3.20	4.70	5.70	6.70	7.70	8.70	9.70
Garhage,	Pueblo	5.20	6.70	8.70	9.70	10.70	11.70	12.70
	Denver	6.20	7.70	9.70	10.70	11.70	12.70	13.70
	Kansas City	7.20	8.70	10.70	13.00	15.00	16.00	17.00
El Paso	2.40	3.20	4.70	5.70	6.70	7.70	8.70	9.70
San Antonio,	Pueblo	5.20	6.70	8.70	9.70	10.70	11.70	12.70
	Denver	6.20	7.70	9.70	10.70	11.70	12.70	13.70
	Kansas City	7.20	8.70	10.70	13.00	15.00	16.00	17.00
El Paso	2.80	3.60	5.00	6.00	7.00	8.00	9.00	10.00
Magdalena,	Pueblo	5.00	6.50	8.50	10.00	11.00	12.00	13.00
	Denver	6.00	7.50	9.50	11.00	12.00	13.00	14.00
	Kansas City	7.00	9.50	11.50	13.00	15.00	16.00	17.00
El Paso	2.80	3.20	4.70	5.70	6.70	7.70	8.70	9.70
Socorro,	Pueblo	5.00	6.50	8.50	9.50	10.50	11.50	12.50
	Denver	6.00	7.50	9.50	10.50	11.50	12.50	13.50
	Kansas City	7.00	9.50	11.50	13.00	15.00	16.00	17.00
El Paso	3.00	4.00	5.50	7.00	8.00	9.00	10.00	11.00
Albuquerque,	Pueblo	4.50	6.00	8.00	9.00	10.00	11.00	12.00
	Denver	5.50	7.00	9.00	10.00	11.00	12.00	13.00
	Kansas City	6.50	9.00	10.00	12.00	14.00	15.00	16.00
El Paso	3.20	4.00	7.00	7.20	7.40	7.60	7.80	8.00
Bernalillo,	Pueblo	4.20	5.70	7.70	8.20	8.70	9.20	9.70
	Denver	5.20	6.70	8.70	9.20	9.70	10.20	10.70
	Kansas City	6.20	7.70	9.70	12.00	14.00	15.00	16.00
El Paso	3.40	4.40	5.80					
Wallace,	Pueblo	4.20	5.70	7.70	8.20	8.70	9.20	9.70
	Denver	5.20	7.20	9.20	9.70	10.20	10.70	11.20
	Kansas City	6.20	7.70	9.70	12.00	14.00	15.00	16.00
El Paso	3.60	4.60	6.00	7.00	8.00	9.00	10.00	11.00
Los Cerillos,	Pueblo	4.00	5.50	7.50	8.00	8.50	9.00	9.50
	Denver	5.00	6.50	8.50	9.00	9.50	10.00	10.50
	Kansas City	6.00	7.50	9.50	12.00	14.00	15.00	16.00
El Paso	6.50	8.00	10.00	12.00	14.00	16.00	18.00	20.00
Flagstaff, A. T.	Pueblo	7.50	9.00	12.50	15.00	17.00	19.00	21.00
Seligman	Denver	8.50	10.00	13.00	15.00	17.00	19.00	21.00
	Kansas City	9.50	11.00	13.50	16.00	18.00	20.00	22.00
El Paso	7.50	9.00	11.25					
Peach Spgs	Pueblo	8.00	9.50	13.75	16.20	18.40	20.60	22.80
Hackberry	Denver	9.00	10.50	14.75	18.20	19.40	21.60	23.80
	Kansas City	10.00	11.50	15.20	19.20	21.40	23.60	25.80
El Paso	7.50	9.00	11.25					
Kingman,	Pueblo	8.00	9.50	13.75	16.20	18.40	20.60	22.80
	Denver	9.00	10.50	14.75	18.20	21.40	23.60	25.80
	Kansas City	10.00	11.50	15.00	19.00	21.00	23.00	25.00
El Paso	7.50	9.00	11.25					
Yucca,	Pueblo	8.50	10.00	14.25	19.00	21.20	23.40	25.60
	Denver	9.00	10.50	14.75	19.50	21.00	22.50	24.00
	Kansas City	10.00	11.50	15.00	19.00	21.00	23.00	25.00
El Paso	7.50	9.00	11.25					
Needles, Cal.	Pueblo	8.00	9.50	13.75	16.20	18.40	20.60	22.80
	Denver	9.00	10.50	14.75	18.20	21.40	23.60	25.80
	Kansas City	10.00	11.50	15.00	19.00	21.00	23.00	25.00
El Paso	8.25	9.75	12.25					
Fenner,	Pueblo	9.00	10.50	15.25	20.00	22.50	25.00	27.50
	Denver	10.00	11.50	16.25	21.00	23.50	26.00	28.50
	Kansas City	11.00	12.50	16.40	20.00	23.00	26.00	29.00
El Paso	8.50	10.00	13.75					
Bagdad,	Pueblo	9.50	11.00	16.80	20.70	23.60	26.50	29.40
	Denver	10.50	12.00	17.50	21.70	24.60	27.50	30.40
	Kansas City	11.50	13.00	17.20	20.70	24.50	27.40	30.30
El Paso	9.00	10.50	14.50					
Daggett,	Pueblo	11.00	11.50	17.80	21.60	24.75	27.90	31.05
	Denver	11.00	12.00	18.50	22.60	25.75	28.90	32.05
	Kansas City	12.00	13.50	19.00	21.00	26.00	29.00	32.00
El Paso	9.00	10.50	14.75					
Barstow,	Pueblo	10.00	11.50	17.25	21.00	25.00	29.00	33.00
	Denver	11.00	12.50	18.25	22.00	26.00	30.00	34.00
	Kansas City	12.00	13.50	19.00	21.00	26.00	30.00	34.00
El Paso	9.50	11.00	15.21					
Kramer,	Pueblo	9.50	10.00	17.71	22.80	26.00	29.00	32.00
	Denver	10.50	13.00	18.21	23.80	26.00	29.00	32.00
	Kansas City	12.00	13.50	18.27	22.80	26.00	29.00	32.00
El Paso	10.00	11.50	16.25					
Mojave,	Pueblo	11.00	12.50	18.25	22.80	26.00	29.00	32.00
	Denver	12.00	13.50	19.25	23.80	26.00	29.00	32.00
	Kansas City	13.00	14.50	19.00	22.80	26.00	29.00	32.00

THE PUEBLO Smelting and Refining Company,

PUEBLO, COLORADO.

BUYERS OF
Gold, Silver, Lead and Copper Ores,
Copper Matte and Bullion.

Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.

CHAS. B. BOOTHE & CO.

— Dealers in —

Engines, Boilers, Pumps, Shafting Hangers, Pulleys, Belting, Lubricating Oils,

Engineering Supplies Mining Hoists Irrigating, Oil Well.

IRON and WOODWORKING Machinery

— Of All Kinds —

Electrical Machinery and Apparatus.

We invite an inspection of our goods at the New Store,

126-128 S. Los Angeles Street,

Los Angeles, Cal.

VULCAN ROPEWAY

*
For Conveying
Ore,
Cordwood,
Etc.



With Automatic Ore Loader and
Automatic Dumping Device

EMPIRE, NEVADA, April 17th, 1898

Vulcan Iron Works:—GENTLEMEN. The ropeway furnished by your Company to convey tailings from Morgan Mill to Mexican Mill, a distance of seven-eighths of a mile, is giving entire satisfaction. We transport 200 tons of tailings in ten hours; one man does the whole business, including elevating tailings from hopper in the ground, operating Vulcan self-loader, and attending to the ropeway generally. The self-dumper requires no attention whatever. The Vulcan loader I consider the best feature in the whole Ropeway, making it possible for one man to load 200 tons in ten hours.

Yours very truly,

J. P. WOODBURY, Supt.

VULCAN IRON WORKS, Manufacturers of Mining Machinery,
SAN FRANCISCO CAL.

Babbit Metal

Relapse, guaranteed best Babbit Made
COPPER FOR AMALGAMATING PLATES.
Brassiers Sheet Copper.
BATTERY ZINCS, ROOFING THIRNE PLATE
Pacific Metal Works,
137-139 FIRST ST., SAN FRANCISCO, CAL.

CLARENCE HERSEY,
Assayer and Chemist,
(Established 1879)

LEADVILLE, COLORADO

Samples by Mail or Express Re-
ceive Prompt Attention

SPECIMEN ASSAY PRICES:

Gold silver and lead, \$1.00; any two of the
above, 75c; any one of above, 50c; copper analy-
sis, \$1; platinum, nickel or tin, \$5.00.
Write for full price list and mailing envelopes

Fraser & Chalmers

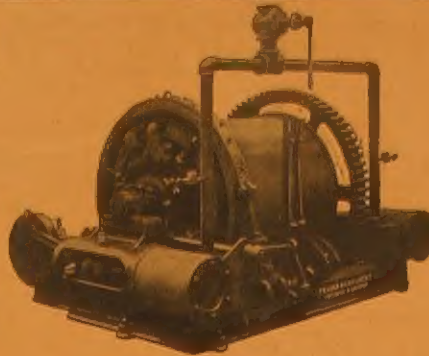
CHICAGO, ILL.

Have Brought Out a New Line of
MEDIUM SIZED

STEAM HOISTING ENGINES



These are designed with great care by engineers familiar with the best previous practice, and knowing just what is wanted to render satisfactory service on a mine. Do you want such service? Then buy one of these improved machines.



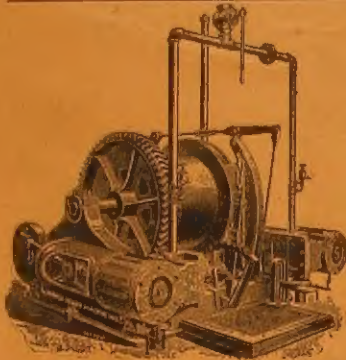
OUR SPECIAL LINES OF MANUFACTURE

On which we would be glad to quote are:

STAMP MILLS, SMELTING FURNACES,
CYANIDE PLANTS, ORE CRUSHERS,
FRUE VANNER CONCENTRATORS,
RIEDLER AIR COMPRESSORS AND PUMPS,
OTTO AERIAL TRAMWAYS,
SHOES, DIES, CAMS,
ROLLS AND JIGS.

Qualified by a Quarter Century of Experience to render you the best of service we invite your inquiries and Patronage.

Fraser & Chalmers,
CITY OF MEXICO: DENVER, COLO. SALT LAKE CITY, UTAH CHICAGO, ILL.
86 BROADWAY, N.Y.



DOUBLE CYLINDER HOISTING ENGINE

JOSHUA HENDY MACHINE WORKS, Nos. 38 to 44 Fremont St.

SAN FRANCISCO, CAL.

Manufacturers of and Dealers in

All the Latest Improved

Quartz Milling, Pumping, Smelting and Electrical
Machinery, Boilers & Engines OF ALL POWERS,
Mine and Mill Supplies.

BUILDERS of "HENDY" IMPROVED "TRIPLE-DISCHARGE" TWO-STAMP MILLS

PLANS, SPECIFICATIONS and ESTIMATES OF COST FURNISHED and CONTRACTS MADE
FOR FURNISHING and ERECTING MINING and MILLING PLANTS for all conditions of Use.

BAKER IRON WORKS

LOS ANGELES, CALIFORNIA

Manufacturers of

Mining and Milling Machinery, Atlas Engines and Boilers, Worthington Steam Pumps

Water Works Machinery
A SPECIALTY

RISDON IRON WORKS

Office and Works, Cor. Beale and Howard Sts., San Francisco

Cable Address, "Risdon's," San Francisco

— MANUFACTURERS OF —

Johnston Concentrators

Risdon Improved Concentrators, Frue Type

Bryan Patent Roller Quartz Mills

Evans' Patent Hydraulic Gravel Elevators

Risdon Ore Feeders, 'Challenge' Type

Air Compressors

Mining, Milling, Pumping
and Hoisting Plants,

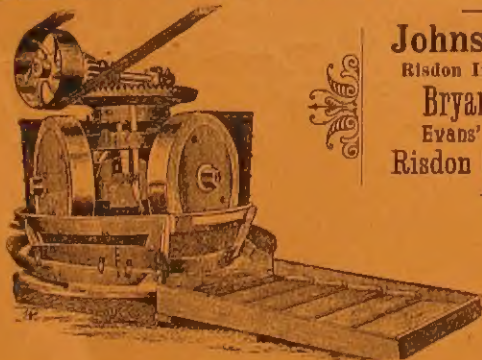
Risdon Pat. Water Wheels,
"PELTON TYPE"

KNIGHT WATER WHEELS

GOLD AND SILVER STAMP MILLS

Catalogues and Prices on Application

Risdon Hammered Steel Shoes and Dies



IMPROVED HYDRAULIC GIANT

The above cut illustrates the improved form of Hydraulic Giants, in which the Center Bolt is dispensed with, which was so liable to catch trash. Prices and catalogues of our specialties sent free on application.

PARKE & LACY COMPANY

21 and 23 Fremont St., San Francisco, Cal.



MINING MACHINERY

SOLE AGENTS FOR

THE INGERSOLL-SERGEANT AIR COMPRESSORS AND ROCK DRILLS.

SOLE LICENSERS FOR THE MANUFACTURE AND SALE OF

THE ROPP STRAIGHT LINE FURNACE, For Roasting, Chlorinating and Desulfurizing Ores.

WE CARRY IN STOCK

Horizontal, Vertical and Portable Engines and Boilers, Rock Breakers, Cornish Rolls, Pulverizers, Concentrators, Ore Feeders, Hoisting Engines, Horse Power Hoisting Whims, Water Wheels, Steam Pumps, Ore Cars, Wire Rope, Ore Buckets, Water Buckets, Skips, Blowers and Exhaust Fans, Shafting and Pulleys, Belting, Oils and Mine Supplies. **Manganese Steel Shoes and Dies**

Estimates Furnished for Complete Plants for Hoisting Works, Smelters, Concentrating and Stamp Mills.

